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Canada

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**FISHERIES AND OCEANS CANADA**

**Information Requests to the  
Nunavut Impact Review Board (NIRB)**

**Whale Tail Pit Project**

December 2016

DFO File No.: 16-HCAA-0037

**Canada** 

## INFORMATION REQUESTS

<b>IR Source</b>	DFO Fisheries Protection Program
<b>IR Number</b>	<b>1</b>
<b>IR Directed To</b>	Agnico Eagle Mines Ltd.
<b>Subject</b>	Freshwater Environment – Habitat Losses
<b>Reference</b>	Volume 6, Section 6.5.3.2.2, p.6-80
<b>Issue/Concern</b>	<p>DFO has had ongoing discussions with Agnico Eagle Mines Ltd with respect to assumptions made respecting fish habitat in an end pit lake. DFO has multiple concerns regarding fish habitat and water quality in an end pit lake and does not agree with the assumptions made in this Environmental Assessment. It is not possible to conduct a technical review without information to analyze on the potential negative outcome.</p>
<b>Information Request</b>	<p>“The physical and chemical environment of the area will allow re-establishment of a healthy functioning aquatic ecosystem.”</p> <p>“(Whale Tail Pit) will include an extended water column as habitat for pelagic species. . . (and) may remain well oxygenated through the winter due to its depth and may provide additional overwintering. . .”</p> <p>“Most habitat functions will be recovered at the completion of refilling and before opening the dike allowing for a quick return of the productivity, abundance and distribution of fish within the refilled area.”</p> <p>DFO requests AEM provide an accurate overview of the end pit lake scenario in Whale Tail Lake to also discuss the potential negative impacts that may persist following upon closure and reclamation. Further to the above listed assumptions by AEM, it is also possible that Whale Tail Lake could have: Elevated heavy metals, poor primary productivity, winterkill, increased salinity, meromictic condition with anoxic hypolimnion, inaccessible substrate, unsuitable for invertebrates, limited littoral zone, and significant time lag and uncertainty of success.</p>

<b>IR Source</b>	DFO Fisheries Protection Program
<b>IR Number</b>	<b>2</b>
<b>IR Directed To</b>	Agnico Eagle Mines Ltd.
<b>Subject</b>	Freshwater Environment – Fish Out
<b>Reference</b>	Volume 6, Section Fish Out, p.6-81
<b>Issue/Concern</b>	<p>“A conceptual fish out plan has been developed in consultation with DFO.”</p> <p>AEM references Volume 8, Appendix E4 for further detail.</p> <p>AEM has not yet consulted with DFO on a conceptual fish out plan.</p> <p>Volume 8, Appendix E4 does not include a fish out plan; rather, it is a conceptual offsetting plan.</p>
<b>Information Request</b>	Further to DFO’s Scoping Comments Oct.6, 2016, DFO requests AEM provide a fish out plan to DFO for discussion.

<b>IR Source</b>	DFO Fisheries Protection Program
<b>IR Number</b>	<b>3</b>
<b>IR Directed To</b>	Agnico Eagle Mines Ltd.
<b>Subject</b>	Freshwater Environment – Valued Components
<b>Reference</b>	Volume 6, Section 6.12, Table 6.1-2, p.6-2
<b>Issue/Concern</b>	<p>Fish species listed as likely occurring in the area of the project include: Lake Trout, Arctic Grayling, Cisco, Lake Whitefish, Round Whitefish, Northern Pike, Burbot, Longnose Sucker, Ninespine Stickleback, Threespine Stickleback, Lake Chub, Slimy Sculpin, and Spoonhead Sculpin (this list does not include Arctic Char).</p> <p>However, elsewhere throughout Volume 6, only Arctic Char, Lake Trout and Round Whitefish are considered as ‘valued.’</p> <p>DFO reminds AEM that <u>all</u> of these species are of fishery and fishery support value in Nunavut and in Canada.</p>
<b>Information Request</b>	DFO requests AEM re-evaluate assumptions of valued fishery components to include all the fish species listed as likely occurring in the area of the project.

<b>IR Source</b>	DFO Fisheries Protection Program
<b>IR Number</b>	<b>4</b>
<b>IR Directed To</b>	Agnico Eagle Mines Ltd.
<b>Subject</b>	Freshwater Environment – Habitat Alteration
<b>Reference</b>	Volume 6, Section Habitat Alteration, p.6-82 & 6-83 & 6-87.
<b>Issue/Concern</b>	<p>“Fish communities may become homogenous between all lakes while the flooding is in place.”</p> <p>“With flooding, most of the stream habitat would be eliminated with the increase in area of Whale Tail Lake (south basin).”</p> <p>“During the refilling period, water levels and discharges are expected to be reduced in Mammoth Lake from 2022-2029”</p> <p>AEM discusses the flooded state as a potential positive impact to the fish community. There is no discussion of the potential negative impacts. The potential ‘positive’ impact of flooding is anticipated over 4 years while a loss in Mammoth Lake is anticipated over 8 years.</p>
<b>Information Request</b>	DFO requests AEM provide additional information, with references, regarding the disruptive impacts of flooding extending over multiple waterbodies, eliminating streams and the impacts to the fish, while simultaneously lowering the water level in an equally important lake (Mammoth) and reducing available habitat elsewhere. Such losses should also be evaluated in the Offsetting Plan.

<b>IR Source</b>	DFO Fisheries Protection Program
<b>IR Number</b>	<b>5</b>
<b>IR Directed To</b>	Agnico Eagle Mines Ltd.
<b>Subject</b>	Freshwater Environment – Changes to Lake Ecosystem Productivity
<b>Reference</b>	Volume 6, Section Changes to Lake Ecosystem Productivity, p.6-88
<b>Issue/Concern</b>	<p>“the meso-eutrophic trigger value will be exceeded in Mammoth Lake, A15 and A12 during operations and closure with a subsequent return to oligotrophic conditions expected to occur by 2039.”</p> <p>AEM anticipates the increase in nutrient concentrations and phytoplankton will lead to an increase in fisheries productivity.</p>

	DFO is concerned that this sudden change from an oligotrophic lake with the disruptions of habitat fragmentation and water quality changes will result in fishery losses and that this loss has not been evaluated by AEM in the Offsetting Plan as it is deemed a positive impact.
<b>Information Request</b>	DFO requests AEM provide further information, with references, discussing the changes from oligotrophic lake condition to eutrophic lake condition and back again, and how this will result in an increase in fishery productivity, and how such a hypothesis will be tested and verified by AEM. AEM provided the example of Saqvaqujac - “The Saqvaqujac studies found increases in primary production and secondary production and increases in the abundance of fish populations;” However, it is noted in that study that it takes several years to become stable and predictability is very poor. It is also not clear at what level AEM is predicting to increase nutrient concentrations and whether they would be comparable to the levels introduced in the Saqvaqujac example.

<b>IR Source</b>	DFO Fisheries Protection Program
<b>IR Number</b>	<b>6</b>
<b>IR Directed To</b>	Agnico Eagle Mines Ltd.
<b>Subject</b>	Freshwater Environment – Monitoring and Follow-up
<b>Reference</b>	Volume 6, Section 6.5.8, p.6-98, AEM Response to Whale Tail Pit Project Completeness Review
<b>Issue/Concern</b>	AEM lists several monitoring plans applicable to the Whale Tail Project. However, as noted, the Conceptual Offsetting Plan only lists a commitment to discuss monitoring with DFO, and the CREMP referenced in Volume 8, Appendix E.2 is an addendum to Meadowbank Project’s CREMP. It should be a standalone document for Whale Tail rather than an addendum to Meadowbank. DFO is not clear why the Habitat Compensation Monitoring Plan for Phaser Lake is referenced here for Whale Tail as they are two completely separate projects. AEM recently responded to the Nunavut Water

	Board (December 7 <sup>th</sup> 2016) and DFO indicating they would not develop a separate Monitoring Plan for Whale Tail.
<b>Information Request</b>	As requested by DFO in the Scoping Comments for Whale Tail October 6, 2016, and November 3, 2016 to the NWB, DFO requests a separate Fisheries Monitoring Plan for the Whale Tail Project. This Plan should also discuss blasting activities and extend into closure and reclamation. An addendum to the Meadowbank Monitoring Plan is not acceptable.

<b>IR Source</b>	DFO Fisheries Protection Program
<b>IR Number</b>	<b>7</b>
<b>IR Directed To</b>	Agnico Eagle Mines Ltd.
<b>Subject</b>	Monitoring, Mitigation and Management Plans – Conceptual Offsetting Plan
<b>Reference</b>	Volume 8, Appendix 8-E, p.7, AEM Whale Tail EA Overview Presentation to DFO and AEM Technical Memorandum Nov.25, 2016.
<b>Issue/Concern</b>	<p>“Discharges of watercourses in the LSA typically peak in late-May to mid-June from snowmelt, rapidly decline in July, and low discharges prevail until frozen conditions in October to November.” Satellite images were taken in July (2011) and August (2015) when water levels are much lower seasonally.</p> <p>AEM provided DFO an overview of precipitation levels annually from 2006 to 2015 – it would appear that 2011 (the year that is proposed to use as reference) was the second to lowest in the last decade.</p> <p>DFO requires an accurate estimate of the wetted area to be impacted by mining activities. This will be required for a technical review of the Offsetting Plan.</p>
<b>Information Request</b>	While there appear to be very minor differences in the July and August satellite photos, there are more significant differences in water levels in June. DFO requests AEM provide imagery from June for all the impacted waterbodies (including Mammoth Lake which was not included originally), and from an average representative year of water levels over the

	last decade (e.g. 2007).
<b>IR Source</b>	DFO Fisheries Protection Program
<b>IR Number</b>	<b>8</b>
<b>IR Directed To</b>	Agnico Eagle Mines Ltd.
<b>Subject</b>	Monitoring, Mitigation and Management Plans – Conceptual Offsetting Plan
<b>Reference</b>	Volume 8, Appendix 8-E, Section 4.2, p.35
<b>Issue/Concern</b>	AEM proposes the flooding of Whale Tail Lake and surrounding waterbodies as fish habitat creation and a potential offsetting measure (0.5m increase). In the short term, during operations, this flooding is unlikely to provide a positive fishery value and should not be considered as offsetting as the negative impacts from the disruption likely outweigh the potential positives. In the long term, the viability of maintaining the dike in perpetuity, the elimination of valuable stream habitat and associated decreased levels in Mammoth Lake also likely result in further negative impacts.
<b>Information Request</b>	DFO requests AEM re-evaluate the conceptual offsetting plan to remove potential gains associated with flooding activities, and that AEM calculate losses associated with diverting water from Mammoth Lake, and the elimination of streams due to flooding of Whale Tail Lake.

<b>IR Source</b>	DFO Fisheries Protection Program
<b>IR Number</b>	<b>9</b>
<b>IR Directed To</b>	Agnico Eagle Mines Ltd.
<b>Subject</b>	Monitoring, Mitigation and Management Plans – Conceptual Offsetting Plan
<b>Reference</b>	Volume 8, Appendix 8-E
<b>Issue/Concern</b>	There are several technical issues of note in the conceptual offsetting plan for DFO to discuss with AEM. In recent discussions with AEM, DFO understands that this plan was written prior to AEM reviewing DFO's <i>Review of Habitat Evaluation Procedure (HEP) Input Parameters and Model Results for the Meadowbank Gold Mine Project</i> (2016). This report contains several recommendations which should be applied to the Whale Tail Offsetting Plan prior to DFO conducting a

	Technical Review.
<b>Information Request</b>	DFO requests AEM review DFO's 2016 HEP Model Report and incorporate recommendations into the Whale Tail Offsetting Plan.

## SUMMARY OF INFORMATION REQUESTS

<b>HABITAT LOSSES</b>	
1	DFO requests AEM provide an accurate overview of the end pit lake scenario in Whale Tail Lake to also discuss the potential negative impacts that may persist following upon closure and reclamation. Further to the above listed assumptions by AEM, it is also possible that Whale Tail Lake could have: Elevated heavy metals, poor primary productivity, winterkill, increased salinity, meromictic condition with anoxic hypolimnion, inaccessible substrate, unsuitable for invertebrates, limited littoral zone, and significant time lag and uncertainty of success.
<b>FISHOUT</b>	
2	Further to DFO's Scoping Comments Oct.6, 2016, DFO requests AEM provide a fish out plan to DFO for discussion.
<b>VALUED COMPONENTS</b>	
3	DFO requests AEM re-evaluate assumptions of valued fishery components to include all the fish species listed as likely occurring in the area of the project.
<b>HABITAT ALTERATION</b>	
4	DFO requests AEM provide additional information, with references, regarding the disruptive impacts of flooding extending over multiple waterbodies, eliminating streams and the impacts to the fish, while simultaneously lowering the water level in an equally important lake (Mammoth) and reducing available habitat elsewhere. Such losses should be evaluated in the Offsetting Plan also.
<b>CHANGES TO LAKE ECOSYSTEM PRODUCTIVITY</b>	
5	DFO requests AEM provide further information with references discussing the changes from oligotrophic lake condition to eutrophic lake condition and back again will result in an increase in fishery productivity and how such a hypothesis will be tested and verified by AEM. AEM provided the example of Saqvaqujac - "The Saqvaqujac studies found increases in primary production and secondary production and increases in the abundance of fish populations;" However, it is noted in that study that it takes several years to become stable and predictability is very poor. It is also not clear at what level AEM is predicting to increase nutrient concentrations and whether they would be comparable to the levels introduced in the Saqvaqujac example.
<b>MONITORING AND FOLLOW UP</b>	
6	As requested by DFO in the Scoping Comments for Whale Tail October 6, 2016, DFO



	requests a Fisheries Monitoring Plan for Whale Tail Project. This Plan should also discuss blasting activities and extend into closure and reclamation.
<b>CONCEPTUAL OFFSETTING PLAN</b>	
7	While there appear to be very minor differences in the July and August satellite photos, there are more significant differences in water levels in June. DFO requests AEM provide imagery from June for all the impacted waterbodies (including Mammoth Lake which was not included originally), and from an average representative year of water levels over the last decade (e.g. 2007).
<b>CONCEPTUAL OFFSETTING PLAN</b>	
8	DFO requests AEM re-evaluate the conceptual offsetting plan to remove potential gains associated with flooding activities, and that AEM calculate losses associated with diverting water from Mammoth Lake, and the elimination of streams due to flooding of Whale Tail Lake.
<b>CONCEPTUAL OFFSETTING PLAN</b>	
9	DFO requests AEM review DFO's 2016 HEP Model Report and incorporate recommendations into the Whale Tail Offsetting Plan.