

QMM's encroachment onto Lake Besaroy – comparing satellite images: 2009 and 2016

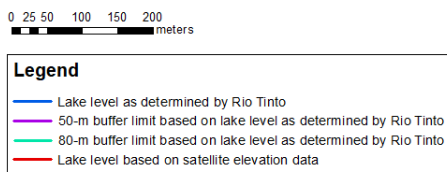
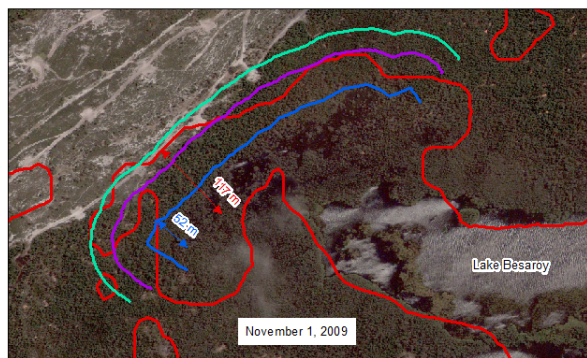


Figure 1a Buffer zone area in question in 2009

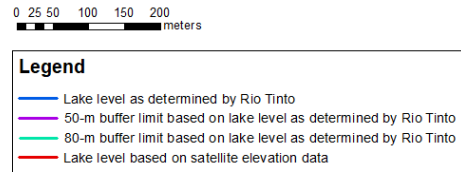
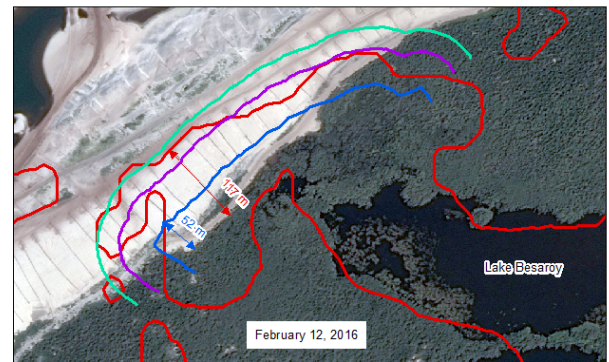


Figure 1b Buffer zone area in question in 2016

The satellite images were obtained from Google Earth and are dated 1st November 2009 and February 12, 2016.

Two independent studies reviewed the Rio Tinto/QMM buffer breach during 2018:

The Ozius study (2018), commissioned by Rio Tinto, used an Ordinary High Water Level (OHWL) provided by Rio Tinto (0.6 masl) defined by the **blue line** in both images, and measured that mine encroachment proceeded 52 metres onto the lake bed (**see blue arrow**).

Dr Emerman's study (2019), commissioned by Andrew Lees Trust, using a more accurate OHWL (4.6 masl) defined by the **red outline**, demonstrated QMM's encroachment of 117metres onto the bed of Lake Besaroy (**red arrow**).

When the 50metre buffer, represented by the **purple line** using an OHWL of 0.6 masl is used (Ozious), the total violation of the buffer is $52 + 50 = 102$ metres.

Using 4.6 masl as the OHWL, the buffer must be set back from edge of the lake (**red line**) by 50metres, so that total violation equates to $117 + 50 = 167$ metres (Emerman, 2018). These violations are clear when comparing the two images across the different time periods.

2019 UPDATE [Rio Tinto's report of March 2019](#) admits QMM has breached the environmental buffer zone at Mandena and extended by as much as 90 metres in some places, beyond the permitted 50metre government approved limit. Rio Tinto also admits to QMM has used mine tailing to construct the "berm", which has encroached Lake Besaroy where local people fish and gather drinking water. No sanctions or penalties have been placed on the company, despite the violation of agreements, the breaking of national law, and the potential risk of water toxicity as a result of exposing waterways to mine tailings rich in radionuclides (the ilmenite extraction process concentrates the radionuclides contained in Monazite and Zircon, which are present in the mineral sands and by products of the extraction).

See reports and articles at: www.andrewleestrust.org/andrew.htm