

Environmental Compliance

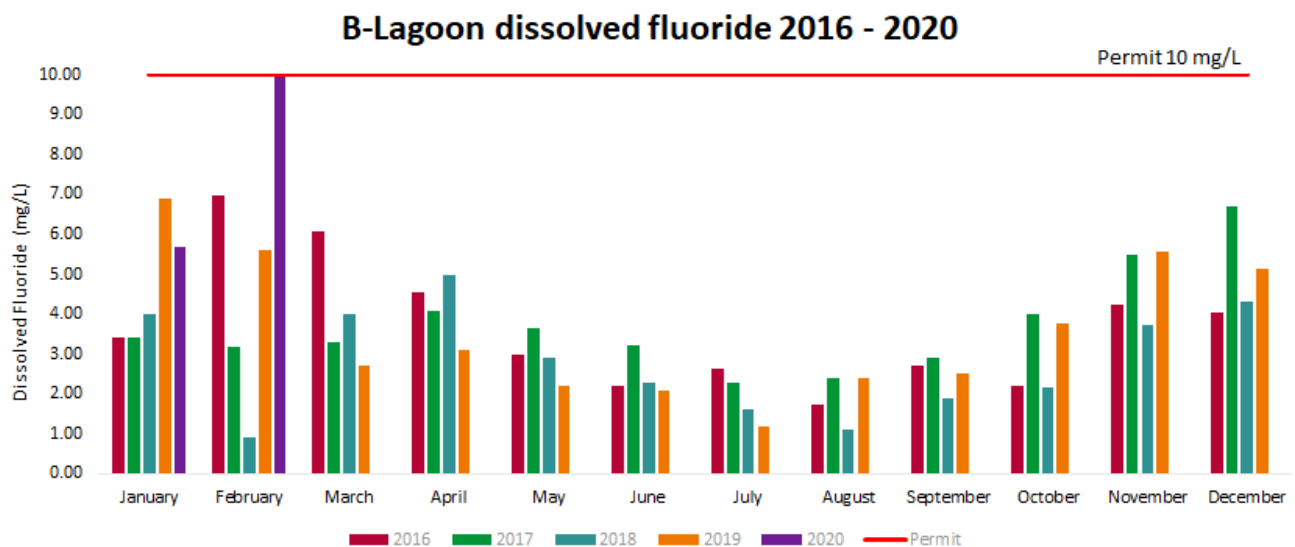
It was largely on the strength of Rio Tinto's voluntary pollution prevention (P2) planning process that the Province of British Columbia issued, in 1999, a "multimedia" environmental permit for our smelter operations. This was the first such permit ever issued in BC and establishes standards, and monitoring and reporting requirements, for a comprehensive range of emissions, effluents, and wastes. The P2 planning process is believed to have played a significant role in the more than 60 per cent reduction in environmental permit non-compliances achieved at the Kitimat smelter since 1996.

Permit reporting

Rio Tinto's P2 Permit requires continuous reporting on several key parameters – from emissions to effluents, and other wastes. The following table provides a brief overview relating to each of these parameters. Rio Tinto also produces an annual report detailing the results of our monitoring efforts. Further information - with respect to recent performance and improvement initiatives - is available in Rio Tinto's annual environmental reports.

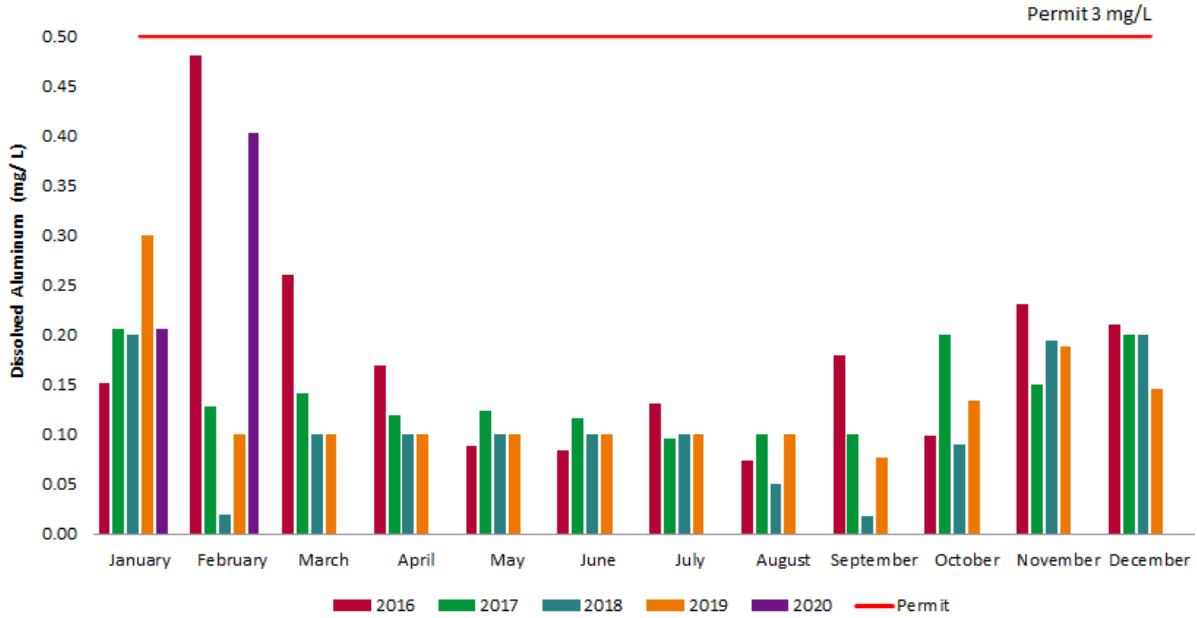
Environmental compliance monitoring

Permit section	3.1 B Lagoon*
Parameter	B-Lagoon dissolved fluoride: Dissolved fluoride originates mainly from the leaching of an on-site landfill, as well as from raw-material losses and fallout from uncaptured fluoride emissions. (The landfill is no longer used, and ongoing storm water diversion work will reduce leaching from it)



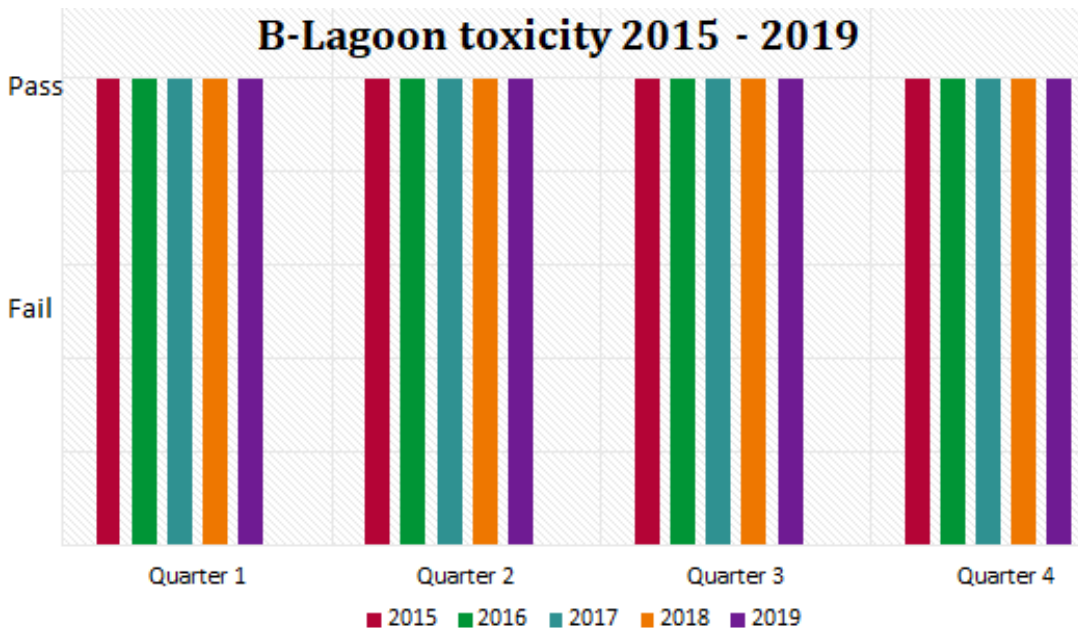
Permit section	3.1 B Lagoon*
Parameter	B-Lagoon dissolved aluminium: Dissolved aluminium originates when alumina comes into contact with precipitation, and also through uncaptured “scrubbed alumina” in emissions (alumina used in a process to control fluoride emissions)

B-Lagoon dissolved aluminium 2016 - 2020

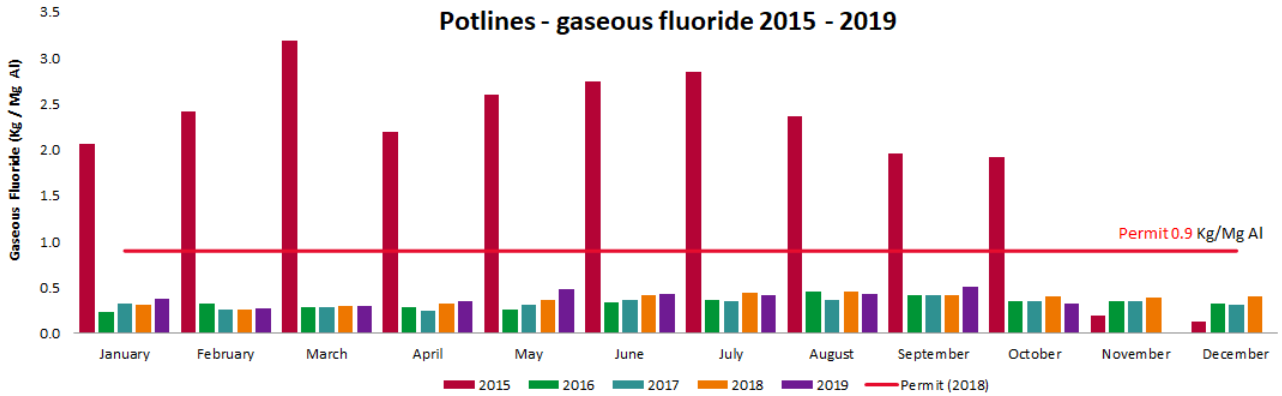


Permit section	3.1 B Lagoon*
Parameter	B-Lagoon toxicity: Both dissolved fluoride and dissolved aluminium can be toxic to marine life at high enough levels

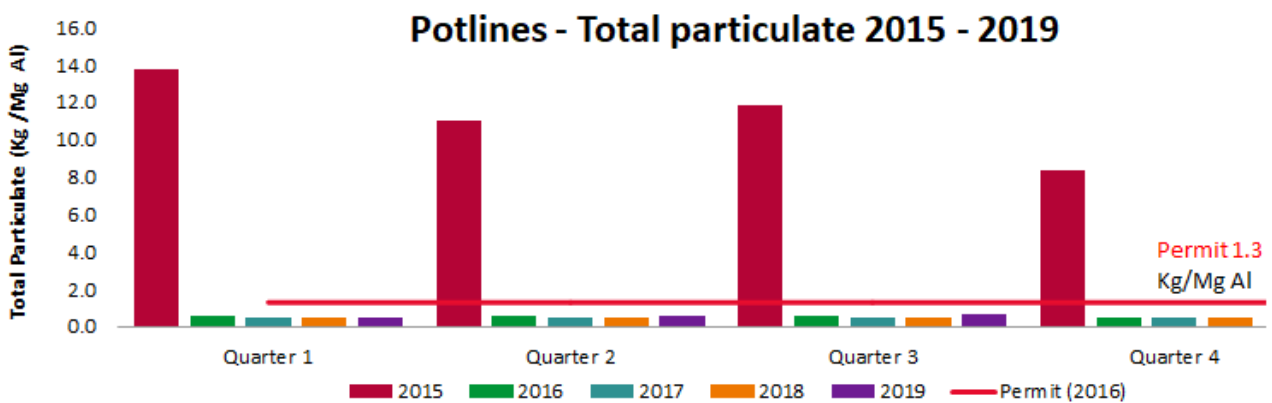
B-Lagoon toxicity 2015 - 2019



Permit section	4.1 Potline secondary emissions
Parameter	Gaseous fluoride: Materials and process deficiencies (anode cracking and anode effects) result in some gaseous fluoride bypassing collection systems. Fluoride emissions can impact vegetation health

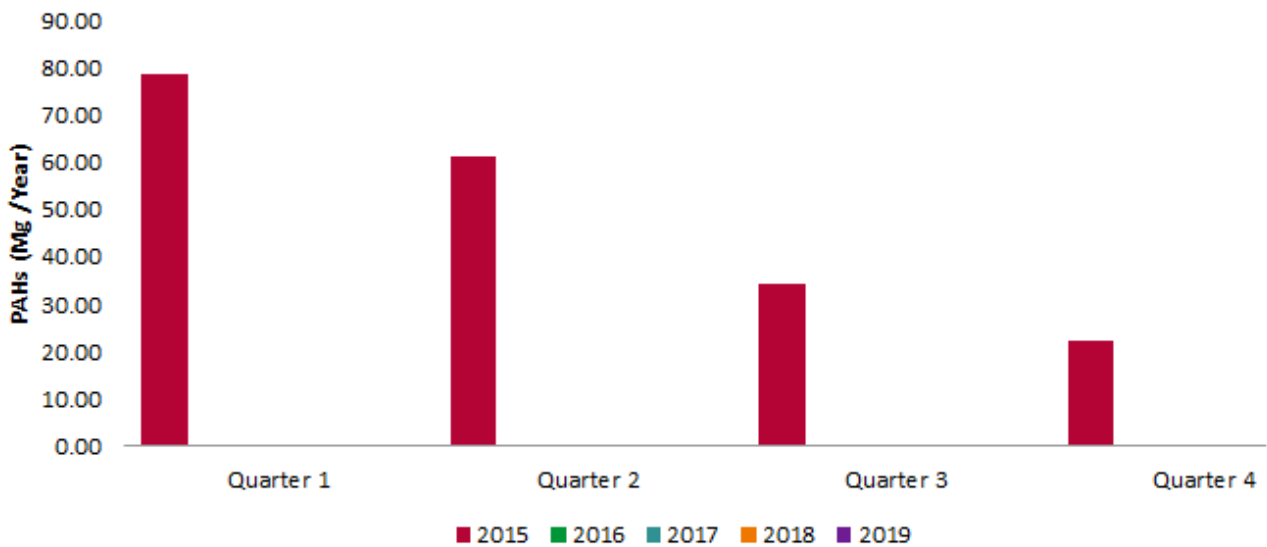


Permit section	4.1 Potline secondary emissions
Parameter	Total particulate: These air-borne solids are composed mainly of alumina, and the relevant contributing factors closely parallel those for gaseous fluoride

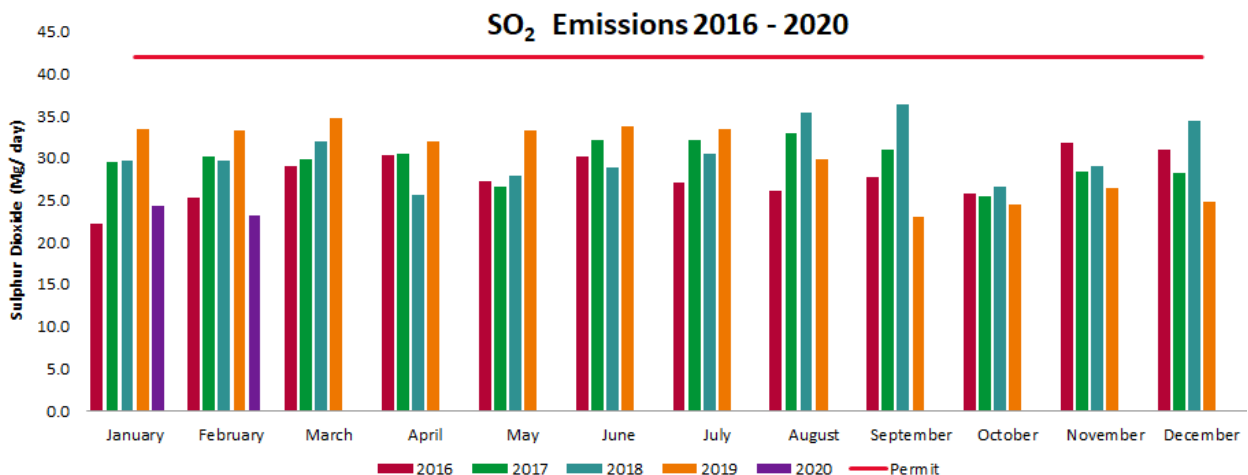


Permit section	4.1 Potline secondary emissions
Parameter	<p>Polycyclic aromatic hydrocarbons: PAHs are a large family of chemical compounds, and originate in emissions mainly as a byproduct of anode manufacturing and consumption.</p> <p>BC Works no longer measure PAHs in the potlines directly because PAHs are baked off in the anode baking furnace before the anodes are used in the potlines.</p>

Potlines - PAH 2015 - 2019

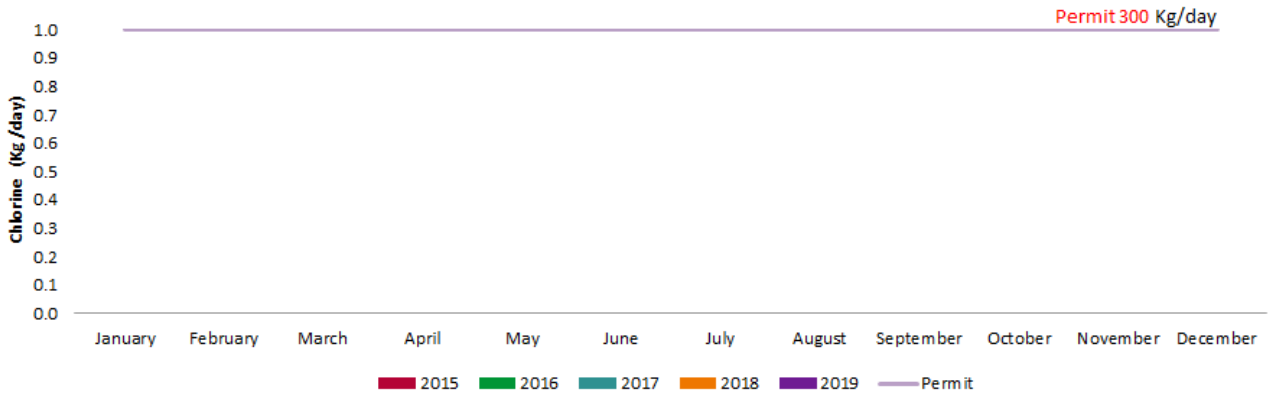


Permit section	4.2 SO₂ emissions
Parameter	<p>Sulphur dioxide: SO₂ originates from the coke (a byproduct of petroleum refining) used to manufacture anodes, and is released both during coke calcining and as anodes are consumed during aluminium production.</p>



Permit section	4.3.3 Casting
Parameter	<p>Chlorine: Chlorine is used during casting to ensure the purity of alloys. Consumption is monitored given the potential impacts of chlorine gas on vegetation in the immediately surrounding area.</p> <p>BC Works stopped using chlorine in the casting process in April of 2014.</p>

Casting chlorine consumption 2015 - 2019



* The diversion of D-Lagoon to B-Lagoon was completed in March, 2002, and the outfall is now used only in the event of overflow conditions. Reporting specific to D-Lagoon was discontinued at that point.