RioTinto

Environmental Compliance

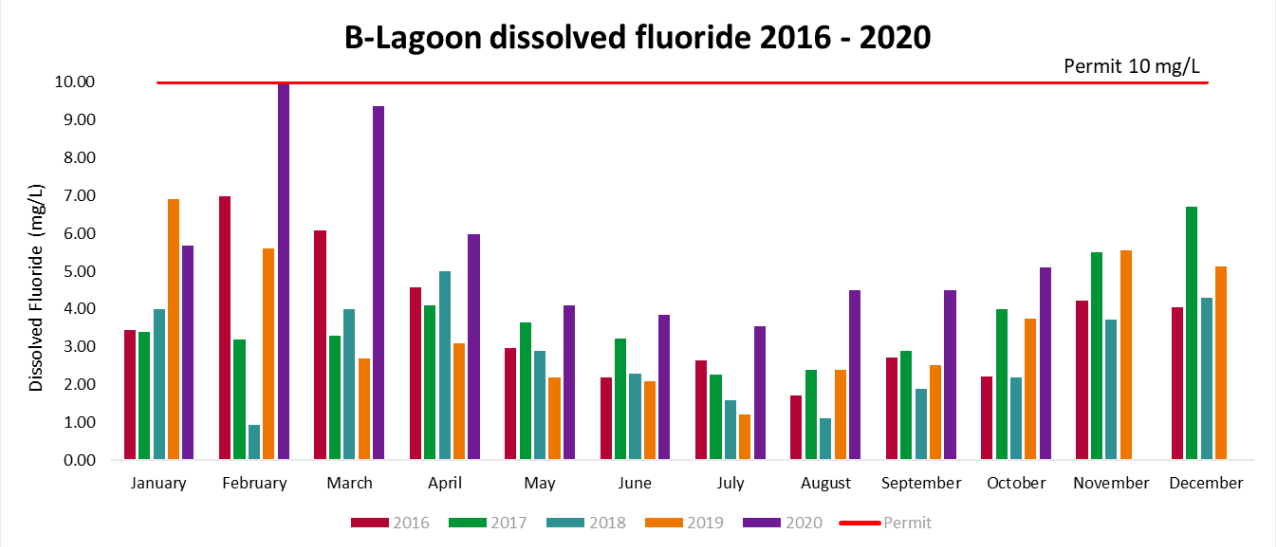
It was largely on the strength of Rio Tinto's voluntary pollution prevention (P2) planning process that the Province of British Columbia issued, in 1999, a "multimedia" environmental permit for our smelter operations. This was the first such permit ever issued in BC and establishes standards, and monitoring 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

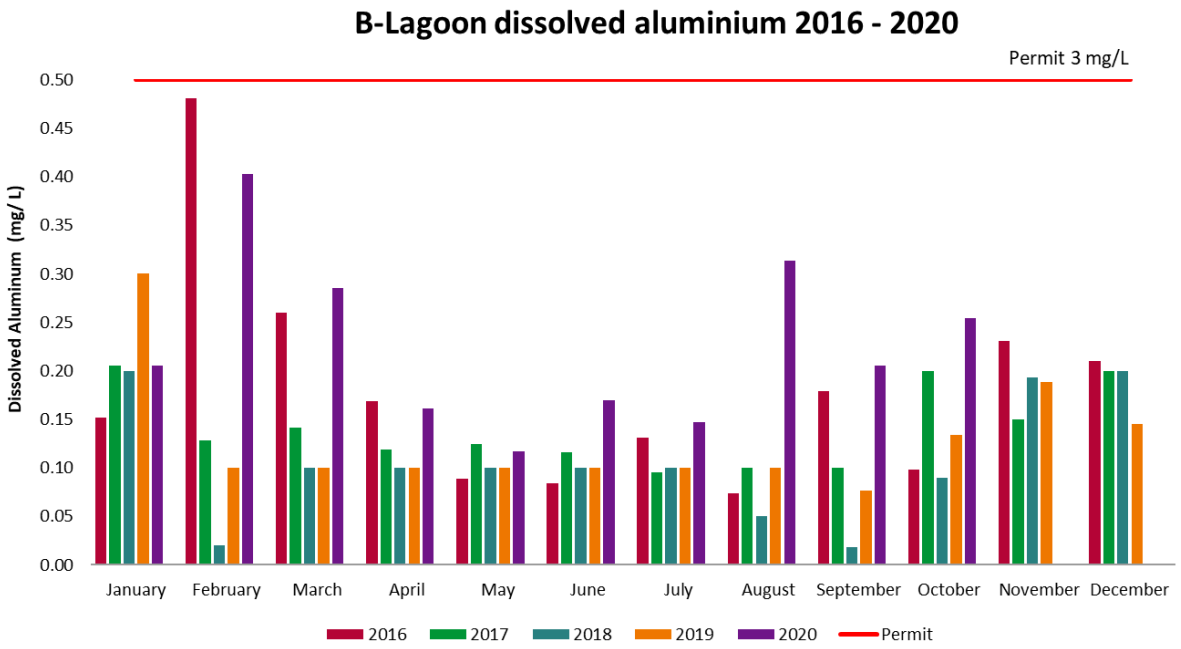
Rio Tinto's P2 Permit requires continuous reporting on several key parameters – from emissions to effluents, and other wastes. The following tables provide a brief overview of a few permit sections which are accompanied by graphs detailing the results of the past five years. Further information on our environmental performance and improvement initiatives can be found in Rio Tinto's annual environmental report detailing

Environmental compliance monitoring

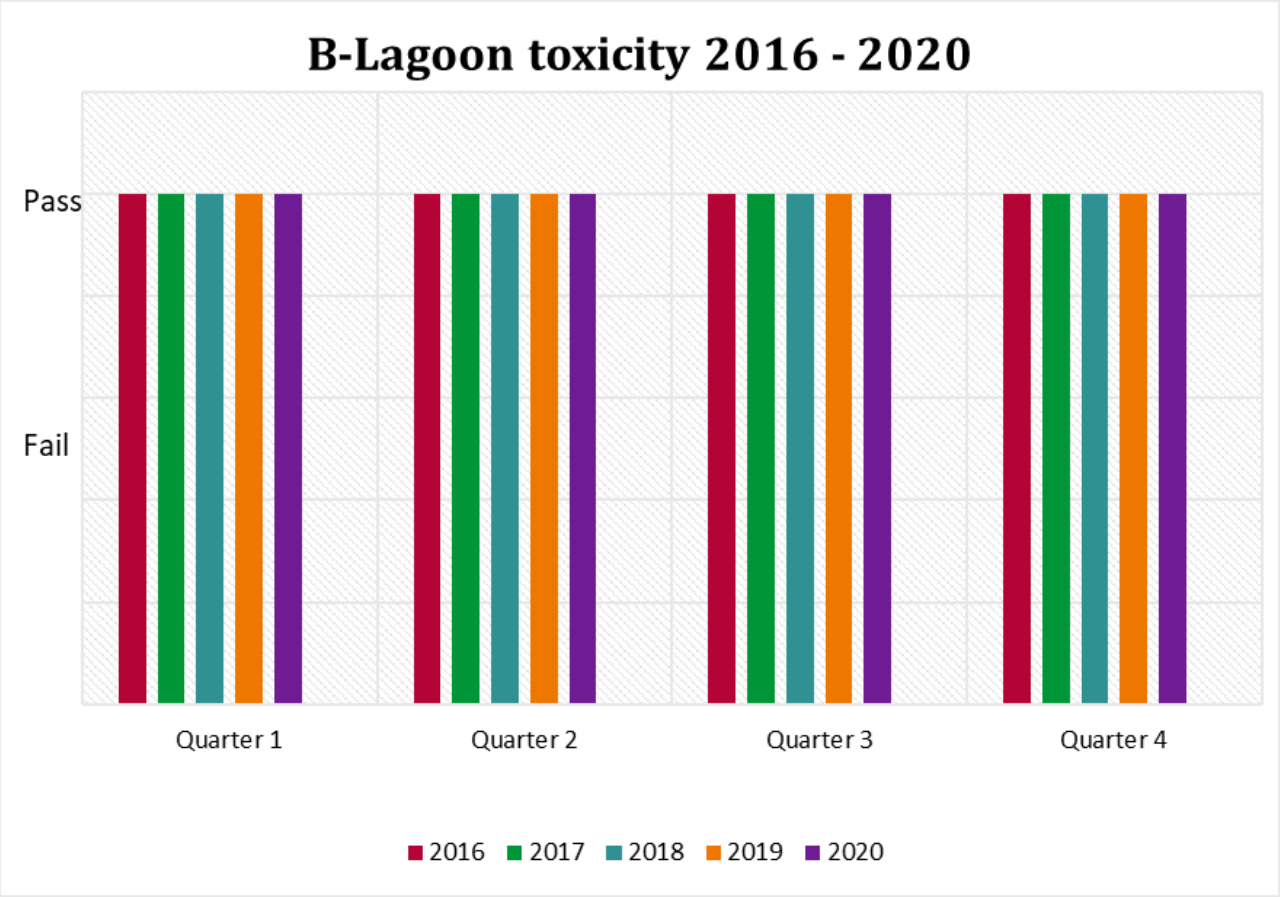
Permit section	Details
3.1 B Lagoon	Dissolved fluoride originates mainly from the leaching of a legacy (no longer used) landfill, as well as from raw-material losses. Ongoing housekeeping and storm water diversion work is conducted to reduce the fluoride concentration. B lagoon is sampled daily for dissolved fluoride and the results for each month are averaged below.



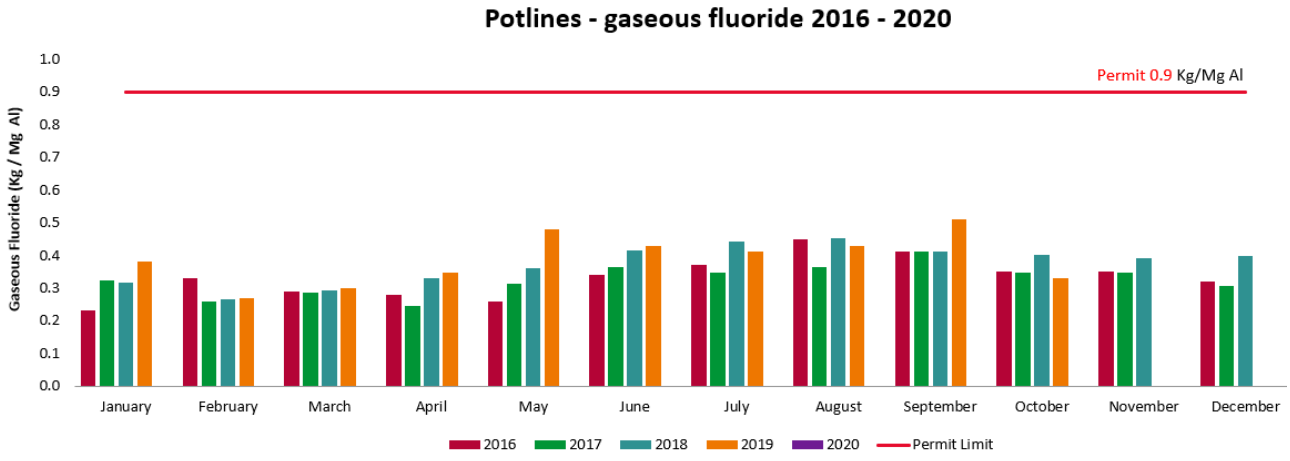
Permit section	Details
3.1 B Lagoon	Dissolved aluminium originates when alumina comes into contact with precipitation, as well as from raw material losses. B lagoon is sampled daily for dissolved aluminium and the results are averaged for each month below.



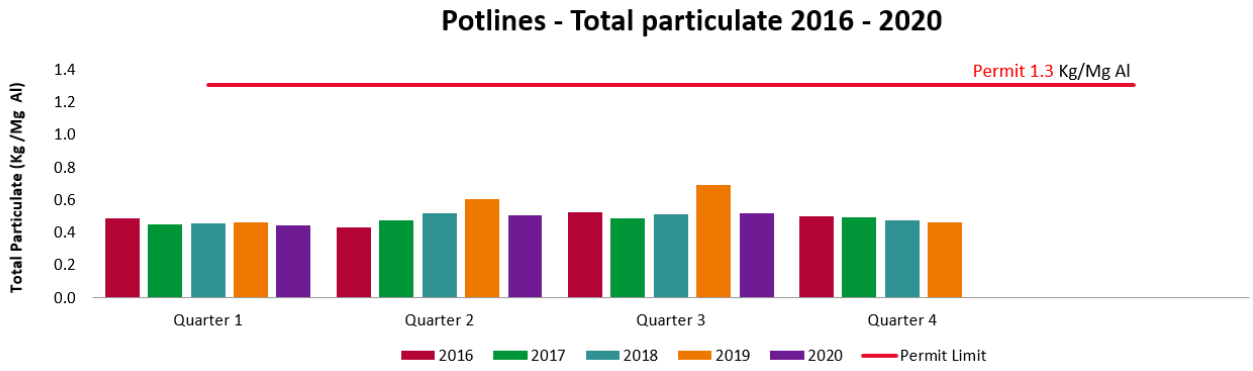
Permit section	Details
3.1 B Lagoon	Toxicity tests measures the effect of the sampled water on rainbow trout over 96 hours. Toxicity is tested quarterly a B lagoon and the test routinely passes with 100% survivability.



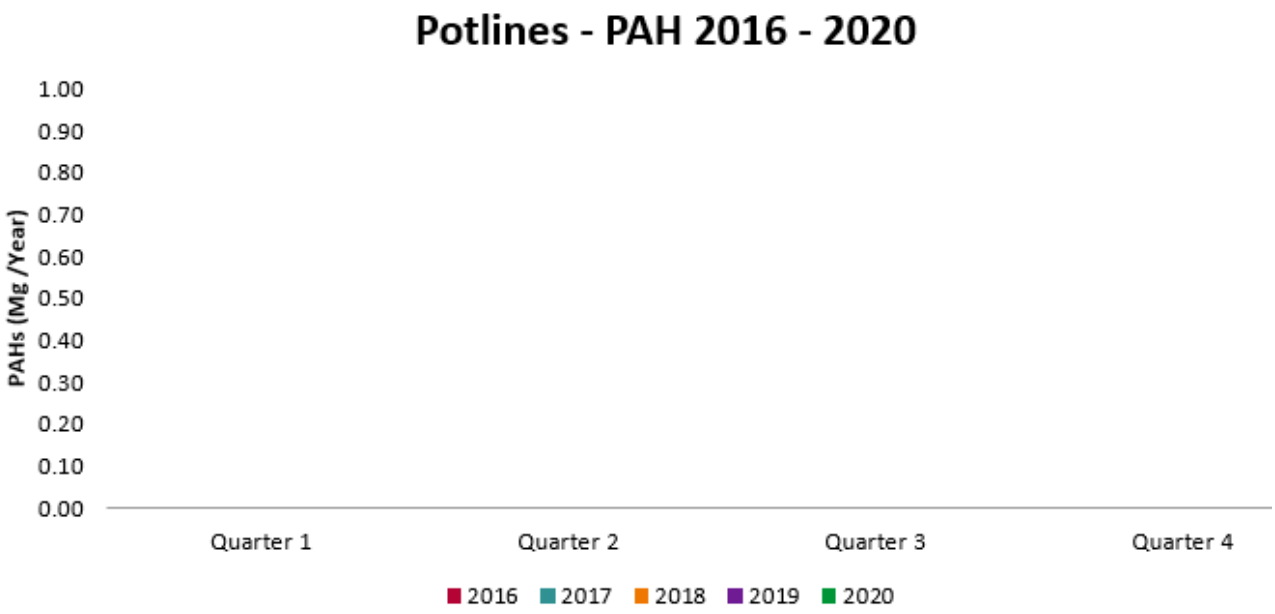
Permit section	Details
4.1 Potline secondary emissions	Gaseous fluoride is produced during the electrolytic process. Most fluoride gas emissions are captured and treated by the two gas treatment centres, however some fugitive emissions are released through the reduction building roof vents. The fugitive emissions are monitored and reported on a monthly basis. Note: Currently a new temporary method of reporting is being used to calculate fluoride total (fluoride gas + fluoride particulates) on a monthly basis. Therefore there is no gaseous fluoride results to update this graph from Nov 2019 - Present.



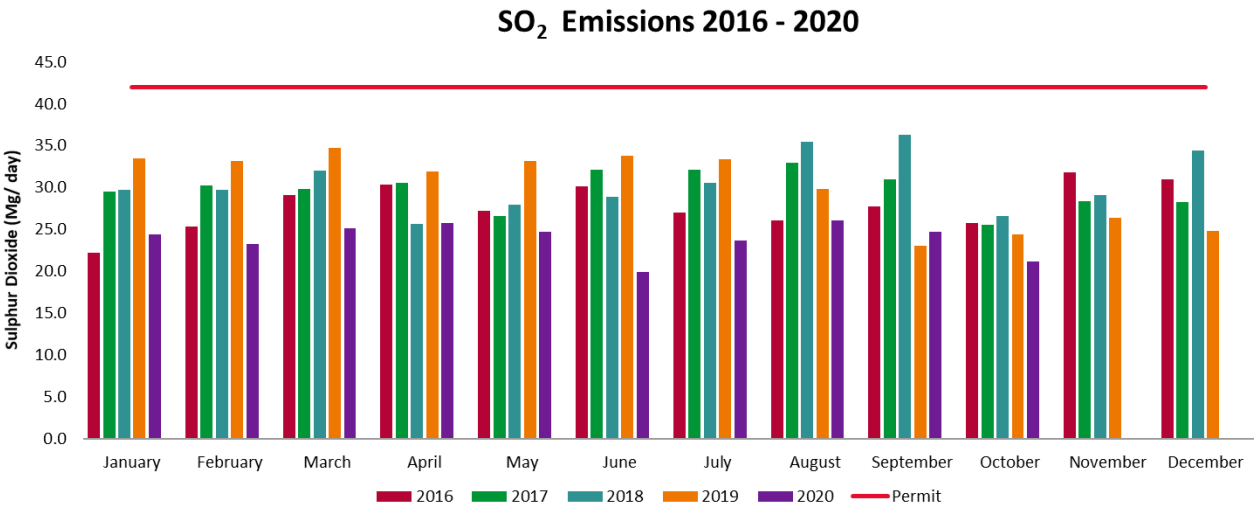
Permit section	Details
4.1 Potline secondary emissions	Total particulate are air-borne solids that are composed mainly of alumina and are produced during the electrolytic process. Most particulate emissions are captured by the two gas treatment centres, however some fugitive particulate emissions are released through the reduction building roof vents. The fugitive emissions are monitored and reported on a monthly basis. The below graph shows the quarterly averaged total particulate emissions.



Permit section	Details
4.1 Potline secondary emissions	Polycyclic aromatic hydrocarbons (PAHs) are a large family of chemical compounds, and originate in emissions mainly as a by-product of anode manufacturing and consumption. BC Works no longer routinely measures PAHs in the reduction buildings since 2016 because PAHs are baked off in the anode baking furnace before the anodes are used in the electrolytic process.



Permit section	Details
4.2 SO_2 emissions	Sulphur dioxide (SO_2) originates from the green coke (a by-product of petroleum refining) used to manufacture anodes, and is released both during coke calcining, anode baking and anode consumption during the electrolytic process.



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