

1 EXECUTIVE SUMMARY

Ektimo was engaged by Pentarch Pty Ltd to determine emissions to air from the Propellant Afterburner (DP2) at the Oaklands, NSW plant.

Monitoring was performed as follows:

Location	Test Date	Test Parameters*
DP2 - Propellant Afterburner	14 June 2017	Hydrogen chloride, solid particles, fine particulate matter (PM ₁₀ & PM _{2.5} via particle sizing analysis), metals (Type 1 & 2) including zinc, nitrogen oxides, sulfur dioxide, carbon monoxide, carbon dioxide, oxygen, volatile organic compounds (VOC)

* Flow rate, velocity, temperature and moisture were determined unless otherwise stated.

The sampling methodologies chosen by Ektimo are those recommended by the NSW Office of Environment and Heritage (as specified in the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales, January 2007*).

All results are reported on a dry basis at STP. Unless otherwise indicated, the methods cited in this report have been performed without deviation.

Plant operating conditions have been noted in the report.

2 LICENCE COMPARISON

The following table compares the results with the limits referenced in NSW EPA Licence 11947 (last amended on 12/06/2015). Analytes highlighted in green are below the licence limits. Analytes highlighted in red are above the licence limits.

EPA	Location Description	Parameter	Units	Licence limit	2017 Detected values
Point 2	Propellant Afterburner	Hydrogen chloride	mg/m ³	100	0.18
		Nitrogen oxides	mg/m ³	350	200
		Solid particles	mg/m ³	50	11
		Type 1 & 2 substances in aggregate	mg/m ³	1	≤1.3
		Zinc	mg/m ³	0.5	0.058

Note: Solid particles is compared to a licence limit of 50mg/m³ as advised by Pentarch Pty Ltd personnel. This is a variation in the licence conditions from the previous reporting period.