

Category	Question Heading	BSL Answers
<i>Licence</i>	What is BSL licensed to do?	<p>Queensland environmental licences are based upon permission to carry out specified Environmentally Relevant Activities (ERAs). The licence ensures that these activities are managed by the company in order to have minimal environmental impact.</p> <p>BSL's ERAs include chemical manufacturing, chemical storage, mineral processing, fuel burning, motor vehicle workshop, metal foundry operation, metal smelting and refining, waste disposal, regulated waste recycling or reprocessing, regulated waste storage, bulk material handling and regulated waste treatment.</p>
	What is the predominant approach used in BSL's licence? Risk based or prescriptive?	BSL's licence parameters, conditions and guidelines are based on a prescriptive approach with either emission limits or monitoring requirements.
	What technology and processes does BSL use to reduce their environmental impact?	<p>BSL has implemented these environmental improvements:</p> <ul style="list-style-type: none"> <li>▪ recycling 300 tonnes per annum (or 95%) of by-product tar from anode production,</li> <li>▪ re-use of cooling water and improvements in carbon plant processes which reduced raw water consumption from 904 to 616 megalitres per annum which is a 32% improvement,</li> <li>▪ installed low noise impellers on Reduction Line 1 and 2 which reduced noise levels by 10 decibels and increased fan efficiency by 15% and which reduced greenhouse gases by 12,500 tonnes per annum,</li> <li>▪ recycled 10,066 (2008) tonnes of spent cell linings by Cement Australia use, which reduced landfill and fossil fuel use. A target of 10,350 tonnes is set for 2009.</li> <li>▪ installed a degasser which reduced staff interaction with hot aluminium and reduced greenhouse gas production by 2,900 tonnes per annum,</li> <li>▪ reduced operating pressure in air compressors which reduced greenhouse gas by 1,500 tonnes per annum.</li> </ul>

*Air Emissions*

What is BSL licensed to emit to the air?

BSL's environmental licence allows emissions of fluoride, particulate, cyanide and ammonia and are shown in the table below.

Contaminant	Release Point Description	Release Point Number	Mass Emission Targets (Kg/day)	Sampling Period Hours (unless otherwise stated)
Fluoride	Reduction Line 1 & 2	A1 + A2	790	36
	Reduction Line 3E, 3F and Butt Cooling Building	A3 + A4 + A5	790 <sup>1</sup>	72 (A3, A4) 24 (A5)
	Reduction Line 1 & 2 Fluoride Treatment Centres	A6+A7+A8+A9	200	24
	Reduction Line 3 Fluoride Treatment Centres	A10+A11	90	24
	Anode Baking Furnace 1 & 2 Fluoride Treatment Centre	A12	10	8
	Anode Baking Furnace 3 Fluoride Treatment Centre	A13	10	8
	Calciner 1 & 2	A16	0.5	4
Sulphur dioxide	Smelter Site	Sum of A1 to A13	40 000	36
Total Particulates	Reduction Line 1 & 2	A1 + A2	1 850	36
	Reduction Line 3E, 3F and Butt Cooling Building	A3 + A4 + A5	1 470 <sup>1</sup>	72 (A3, A4) 24 (A5)
	Reduction Line 1 & 2 Fluoride Treatment Centres	A6+A7+A8+A9	1600	24
	Reduction Line 3 Fluoride Treatment Centres	A10+A11	1200	24
	Anode Baking Furnace 1 & 2 Fluoride Treatment Centre	A12	75	8
	Anode Baking Furnace 3 Fluoride Treatment Centre	A13	75	8
	Calciner 1 & 2	A16	5	4
Ammonia	Calcine Treatment Plant	A17	90	4

What are the conditions for BSL's licensed air emissions?

The BSL site limit for Fluoride is the lesser of either 1 kilogram of fluoride per tonne of aluminium produced or 1630 kilograms of fluoride per day.

The environmental licence also has conditions for fume treatment, fluoride treatment, shutdowns, release heights for emissions and air monitoring frequencies.

<p><i>How do you know that you are operating within your licence conditions?</i></p>	<p>What pollutants does BSL monitor for?</p>	<p>The BSL environmental licence requires the monitoring for gaseous and particulate fluoride as well as Total Particulate emissions shown in the table below.</p> <table border="1" data-bbox="882 201 2018 563"> <thead> <tr> <th>RELEASE POINT NUMBERS</th> <th>RELEASE POINT DESCRIPTION</th> <th>DETERMINATION REQUIRED</th> <th>FREQ- UENCY</th> </tr> </thead> <tbody> <tr> <td>A1, A2, A3, A4, A5</td> <td>Reduction Line 1 &amp; 2, Reduction Line 3, Butt Cooling Building</td> <td>Gaseous and Particulate Fluoride, Total Particulate</td> <td>1 per month</td> </tr> <tr> <td>A6, A7, A8, A9, A10, A11,</td> <td>Reduction Line 1,2, &amp; 3 and Anode Baking Furnace 1,2 &amp;3 Fluoride Treatment Centres</td> <td>Gaseous and Particulate Fluoride and Total Particulate</td> <td>1per month</td> </tr> <tr> <td>A12, A13</td> <td>Anode Baking Furnace 1,2 &amp;3 Fluoride Treatment Centres</td> <td>Total Particulate</td> <td>1 per month</td> </tr> <tr> <td>A12, A13</td> <td>Anode Baking Furnace 1,2 &amp;3 Fluoride Treatment Centres</td> <td>Gaseous and Particulate Fluoride</td> <td>1 per month</td> </tr> <tr> <td>A 16</td> <td>Calciner 1 &amp; 2</td> <td>Fluoride, Cyanide, Total Particulate</td> <td>2 per year</td> </tr> <tr> <td>A17</td> <td>Calcine Treatment Plant</td> <td>Ammonia</td> <td>2 per year</td> </tr> </tbody> </table> <p>Additionally, BSL completes vegetation monitoring for foliar (on leaves) fluoride and monitors dust collectors annually for Total Particulate.</p> <p>BSL has also undertaken a further environmental evaluation of significant emission points onsite.</p>	RELEASE POINT NUMBERS	RELEASE POINT DESCRIPTION	DETERMINATION REQUIRED	FREQ- UENCY	A1, A2, A3, A4, A5	Reduction Line 1 & 2, Reduction Line 3, Butt Cooling Building	Gaseous and Particulate Fluoride, Total Particulate	1 per month	A6, A7, A8, A9, A10, A11,	Reduction Line 1,2, & 3 and Anode Baking Furnace 1,2 &3 Fluoride Treatment Centres	Gaseous and Particulate Fluoride and Total Particulate	1per month	A12, A13	Anode Baking Furnace 1,2 &3 Fluoride Treatment Centres	Total Particulate	1 per month	A12, A13	Anode Baking Furnace 1,2 &3 Fluoride Treatment Centres	Gaseous and Particulate Fluoride	1 per month	A 16	Calciner 1 & 2	Fluoride, Cyanide, Total Particulate	2 per year	A17	Calcine Treatment Plant	Ammonia	2 per year
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	<p>Where are BSL's monitoring sites - on site and off site?</p>	<p>BSL conducts ambient air monitoring for fluoride and particulate emissions at four monitoring sites and foliar fluoride is completed at least 15 locations.</p> <p>In coordination with the Port Curtis Integrated Monitoring Program the water quality of a release point at Spillway Creek is monitored monthly, while BSL also undertakes additional weekly monitoring.</p> <p>Further information and a map of BSL' s emission and monitoring locations is at: <a href="http://www.gilg.com.au/document/show/47">http://www.gilg.com.au/document/show/47</a></p>																												
	<p>How does BSL monitor? Real time or sample?</p>	<p>BSL conducts both real time and sample based monitoring</p>																												
	<p>If sample, how often does BSL sample, who collects samples and where are samples analysed?</p>	<p>BSL conducts the following monitoring:</p> <ul style="list-style-type: none"> <li>▪ monthly tests at the Reduction Line Gas Treatment Centres and Carbon Bake Furnaces Fume Treatment Centres,</li> <li>▪ monthly tests for foliar fluoride (on vegetation) and ambient fluoride,</li> <li>▪ annual dust collector samples, and</li> <li>▪ real time TEOM (Tapered Element Oscillating Microbalance) monitoring at two locations. (The TEOM is an automated particulate sampler in common</li> </ul>																												

		<p>usage. The TEOM operates by drawing air through a filter attached at the tip of glass tube. An electrical circuit places the tube causing an oscillation, and the resonant frequency of the tube's oscillation is proportional to the square-root of the mass on the filter.)</p> <p>All samples are collected by BSL Laboratory and Environmental Staff with some samples analysed at the BSL Site Laboratory and others sent to the National Measurement Institute (NMI) for analysis. The BSL Site Laboratory is NATA accredited for fluoride and cyanide. NATA, the National Association of Testing Authorities, is the Australian Government's endorsed provider of accreditation for laboratories.</p>
	Does BSL report monitoring results to the DERM and, if so, how?	Monitoring results are reported to DERM in annual licence return.
	Does BSL make the results public and, if so, how can people access them?	The sites emissions are reported annually in the National Pollutant Inventory (NPI) and in the annual licence return. This data is available online at <a href="#">Substance Emission Details</a> . The site is: <a href="http://www.npi.gov.au">www.npi.gov.au</a>
<i>Breaches</i>	What happens if BSL exceeds their licence conditions?	BSL hasn't breached its mass emission licence limit since May 2007. If this was to occur, the EPA has to be notified within 24 hours of BSL becoming aware of a licence breach.
	What is the external and internal process used by BSL to report and rectify exceedances?	<p>Environmental Services would notify the DERM of the type, time and outcome of incident within 24 hours of becoming aware of the breach. BSL raises an internal environmental incident report, completes an incident investigation, causative factors are identified, corrective and preventative actions are then developed and implemented. BSL provides written Environmental Incident report to DERM within statutory 14 days.</p> <p>On a case by case basis, a report of the incident may also be made available to the public.</p>
<i>Internal Targets</i>	Does BSL have internal standards or targets?	<p>Yes, in accordance with an ISO 140001 certified EMS, BSL has established internal objectives and targets to help reduce high and critical environmental risks. Rio Tinto has also mandated certain environmental targets will be established. These targets are tracked and reported to corporate.</p> <p>For instance, BSL has aggressive internal targets to reduce their emissions of particulate and fluoride. For instance, the internal target for fluoride in 2009 is 0.79</p>

		kilogram of fluoride per tonne of aluminium produced.
	Are BSL's standards or internal targets tougher than regulation and, if so, in what ways?	The internal targets are in place to reduce environmental risks or to implement RT goals. Each year the internal targets get more stringent to promote continuous improvement. In every instance they are either more strict or addressing risks that aren't covered by regulations.
<i>Emission Reduction</i>	What work practices or strategies does BSL use to reduce emissions. Is this risk-based?	BSL uses specifically designed scrubbing systems, bag houses, and best available operating practices to help reduce air impacts. BSL also uses LEAN manufacturing systems to help achieve a clean and tidy workplace, reducing the amount of process materials that can potentially enter drain systems.
	What projects has BSL completed in the last five years to reduce air emissions?	Conversion to Star Bag filter bag technology on Line 1&2 gas treatment centres (\$2.5m), cell fume hood upgrade (\$900k), upgrade of one alumina transfer station on the conveyer between QAL and BSL (\$11.4m - 4 points) and an upgrade of the coke ship unloader to minimize spills. Implementation of the Comalco Control System (CCS) has delivered a substantial reduction in anode effect frequency (\$6.5m).
	What budgeted projects has BSL planned to reduce air emissions?	Line 3 Star bag trial (\$490k), Carbon Bake Furnace 4 Construction (\$385m), CBF 3 rebuild (\$4.1m capital, \$29.9m operational), Transfer Point Upgrades (\$11.4m), Dense phase alumina delivery for Lines 1&2 (\$70m), Upgrade Bath Plant for Line 3 (\$8m), Anode Effect reductions on all reduction lines and anode optimisation (\$1.275m).