

# Rio Tinto Alcan

Sustainable Development Report  
ISAL 2010

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# Declaration of the Management Committee

All information published in this report is correct and provided according to the best of our knowledge. The report provides a realistic picture of the operation of the Company and has significant value in relation to plans to improve the performance of the Company.

It is our sincere intention to promote continuous improvement, both for ourselves and that of others, in the field of sustainable development.

Green accounting under government Regulation No. 851/2002 is part of this report. A confirmation of the audit of this information is provided on page 35.



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# Introduction



This is the second time that Alcan Iceland Ltd. issues a sustainable development report. The report contains the Company's "Green accounting", as well as information on other matters that relate to the operation. The term sustainability is generally considered to cover environmental, social and economic factors. This has been a guiding principle in the preparation of this report, although the organisation of chapters is used to reflect the operation of the Company and its main focus.

Various successes were achieved in 2010. One of the most enjoyable was our success in maintaining our excellent safety record. The Company's ambitions in safety issues have been noticed within Rio Tinto. The President and Chief Executive Officer of Rio Tinto, Tom Albanese, awarded the Company a Safety Recognition for its success and visited the aluminium smelter for the occasion. This is the most important safety award given within Rio Tinto, one of the largest companies in the world. Clearly, it will be a significant challenge to continue to uphold this success in 2011, not least because of the execution of the ISAL Production Upgrade (IPU) project in connection with an increase in production and product modifications.

Environmental performance was also good, and the most prominent success was the reduction in fluoride emissions from the previous year, measuring at the lowest rate in the history of the aluminium smelter. This achievement can be attributed to several simple but innovative improvements that were made to the dry adsorption plants. The alterations are discussed elsewhere in the report. It is gratifying to see the reduction of fluoride emissions, as measured in tonnes, despite increased production. It is also gratifying that the emissions of PFCs – which are strong greenhouse gasses – continued to remain one of the lowest known within the aluminium industry globally.

A significant part of our procedures in Straumsvík is not to focus too much on the positive aspects. We take very seriously the fact that the number of complaints from the community were at a rather high level during the year. In total, we received seven complaints from the public, compared with two the previous year. The principal reason for this increase was a breakdown in the silencer of the unloading crane that caused inconvenience to our neighbours. The malfunction has been repaired, and the plan is to reconstruct the crane or purchase a new one.

There was a fire in the casthouse in August caused by molten aluminium spilling down into the basement. The fire caused quite a disruption in the operation of the casthouse, as one of two casting lines went out of

operation. Remelt metal had to be produced for a while, but the casthouse returned to full operation in one month. The most important thing, however, is that there were no injuries to people.

ISAL's aluminium production increased by over 400 tonnes from the previous year. The total production was 189,965 tonnes, a record performance. These splendid results can be attributed to good current efficiency, an increase of the current in potroom 3, the quality of the anodes and the alertness and good education of the personnel. The world market price of aluminium was significantly higher than in 2009, which in turn was manifested in improved returns for the Company.

Over 600 members of the public came on organised visits during the year and were shown around the Company. There is a great interest in such visits, and the Company barely manages to meet this demand, although there is a great will to do so. The grants and sponsorships that the Company awards to the community amounted to ISK 46m during the year.

In the summer of 2010, a new electric power agreement, valid until 2036, was signed with Landsvirkjun. Subsequently, the decision to increase the production by about 20% was made, and a short time thereafter the decision was made to change the production in the casthouse to produce billets instead of slabs. The total investment in these two projects is ISK 57bn, the largest investment in Iceland after the economic collapse in the autumn of 2008. It is particularly gratifying to be able to participate in such a decisive manner in improving living standards and raising the level of employment in Iceland at this point in time, when it is greatly needed.

With respect to 2011, it is clear that we need to keep up our guard as it relates to maintaining good results and to improve upon them as far as realistically possible. This is an even greater challenge than would otherwise be the case due to the previously mentioned large-scale project that is both technically complex and being carried out while the aluminium smelter is in other respects in full operation. At present, this is a great challenge for our employees, their talents, skills, experience and aspirations.

Rannveig Rist  
General Manager

# ISAL corporate policy

Our role is to produce high-quality aluminium and provide maximum returns in accordance with the wishes of our customers in such a manner that health, safety and environmental matters are kept in the forefront. The Company is committed to excellence in all its activities and determined to maintain continuous improvement as a guiding principle as well as to always operate in harmony with the environment and society. Our future is based on outstanding personnel. We comply entirely with the Company's principles and standards of conduct: The way we work. Our values are Accountability, Respect, Teamwork and Integrity. Our vision for the future is to ensure the long-term growth and competitiveness of the Company.

## Health, safety and environmental issues (HSE)

It is our conviction that the focus on health, safety and environment is the prerequisite for excellent performance.

## Employees

One of our most important resources are competent, motivated and positive employees that create a safe and preferred workplace. We emphasise strategic educational activities, feedback on performance and good information flow, together with opportunities for career development.

## Community and communication

We attach great importance to the operation being in harmony with the environment and the community in the spirit of sustainable development. An important element in this is active dissemination of information and regular two-way communication with stakeholders. We comply with laws and government regulations in all respects, and we strive to lead with a good example in all our activities.

## Clients and markets

Our goal is customers who are satisfied and who view ISAL as their first choice.

## Growth, technology and development

We wish to maximise technical performance and have resolved to ensure efficiency in all our procedures, through continuous improvement and establishing clear, defined goals.

## Operation and financial results

We want to maximise the Company's rate of return and ensure its competitiveness in the future. By streamlining the operation, we improve stability in our operation and prevent waste.







# The Company

**The aluminium smelter in Straumsvík is operated by Alcan Iceland Ltd., which is part of Rio Tinto Alcan, one of the largest aluminium producers in the world. The name of the aluminium smelter is ISAL.**

Rio Tinto Alcan is the aluminium division of the British mining company Rio Tinto, which was established in 1873. The Company places great importance on the health and safety of its employees, sustainable development and fair business practices. The Company's international principles and standards of conduct are called "The way we work" and are accessible in Icelandic on the ISAL website. Rio Tinto has its headquarters in London and employs more than 60 thousand people. The operations of Rio Tinto are divided into five principal product groups: aluminium, copper, diamonds and minerals, energy and iron ore. The Company's aluminium production is approximately 10% of the total world aluminium production, or approximately 3.8m tonnes in 2010.

ISAL produces high-quality aluminium in accordance with customer requests. The Company produces a variety of alloys in different sizes, in total close to 200 different finished products that are ready for rolling. The aluminium from Straumsvík is used in various specialised goods, such as sheets for the construction industry, printing plates, packaging for pharmaceuticals, cosmetics and cars. ISAL's largest customers are in Germany, but the Company also sells aluminium to other countries.

The personnel includes mechanics, engineers, electricians, workers, technical engineers, painters, office workers, car mechanics, business administrators, masons, cooks, electronics engineers, carpenters and many more. Furthermore, 150 of the current employees have completed the main level of education in the Company school, or a total of 195 since the founding of the school in 1998. An additional 22 have completed the school's advanced level. The knowledge of these persons, systematic continuous education and continuous technical progress enables the Company to produce high-quality products with a significant added value.

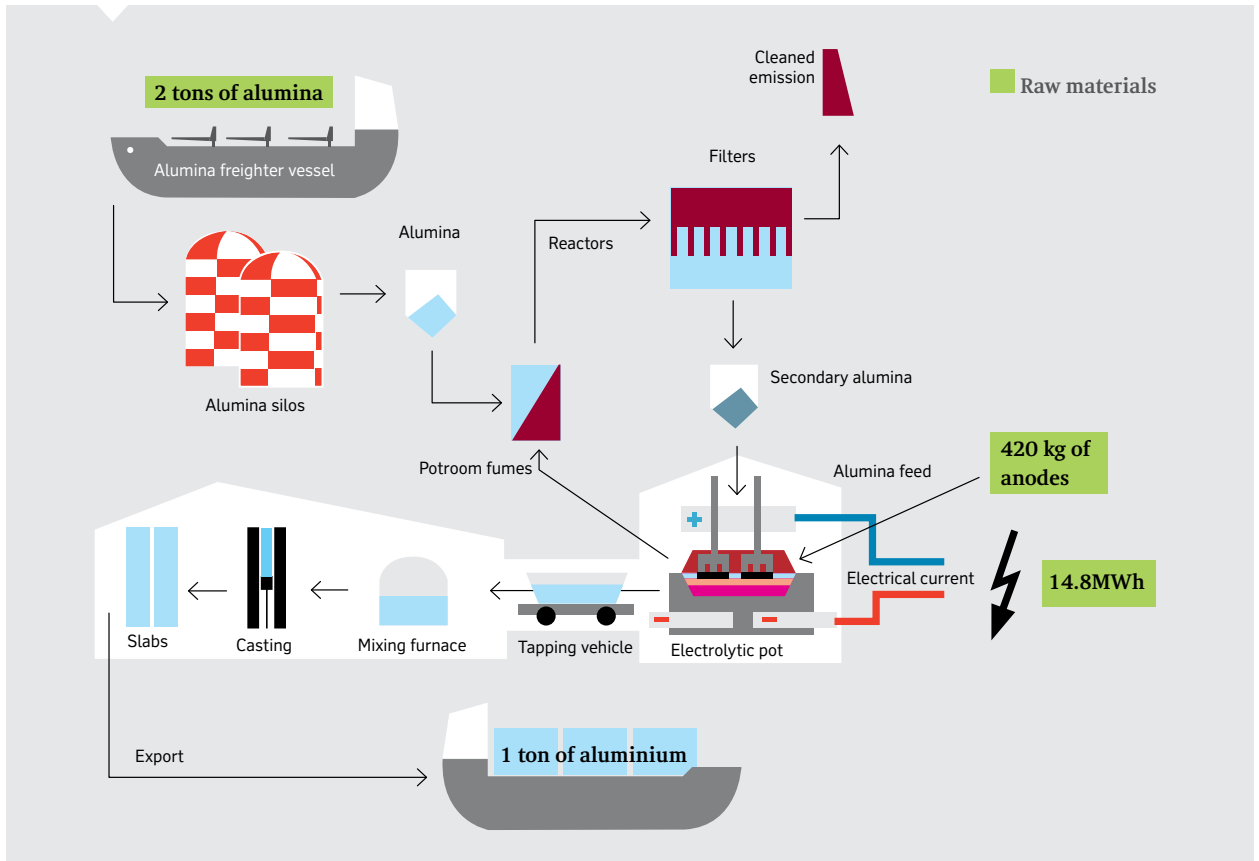
Aluminium production requires a great deal of electricity. ISAL uses close to 3,000 gigawatt hours of electricity per year, or 18% of the electricity used in Iceland. The Company's output of aluminium is approximately 190,000 tonnes annually.

ISAL has a certified quality, environmental and safety management system according to the international standards ISO 9001, ISO 14001 and OHSAS 18001. A systematic commitment to continuous improvement is one of the Company's key pillars. Work on implementing lean operation methodology, moreover, is underway.

The operating permit for Alcan Iceland Ltd. was issued by the Environment Agency of Iceland on 7 November 2005 and is valid until 1 November 2020. The Agency is, moreover, the regulatory body. The Company is classified under enterprise category 2.1 aluminium production, according to accompanying documents to the government regulation on green accounting.

The Company's Board consists of seven individuals. Four members and the Chairman of the Board of Directors represent the owners, while the Government of Iceland has two representatives. Representing the owners are Wolfgang Stiller, Chairman of the Board of Directors; Jean-Philippe Puig; Sylvain Bolduc; Jón Sigurdsson; and Einarsson. Representing the Government are Gunnar Axel Axelsson and Margrét Frímansdóttir.

# The production process



Aluminium is produced by alumina electrolysis. Alumina is a compound of aluminium and oxygen ( $Al_2O_3$ ), mostly resembling fine-grained white sand. In addition to alumina, electricity and anodes are the principal raw materials in the production of aluminium. The power is purchased from Landsvirkjun. The alumina is primarily purchased from the US and Brazil and the anodes from the Netherlands; both are transported by sea to Iceland.

Electrolysis takes place in potrooms in specially made pots. ISAL's three potrooms contain a total of 480 pots. Each pot produces approximately one tonne of aluminium per day all year round. To enable electrolysis, an electrical current must be sent through the pots. Each pot contains a fluorine-rich electrolyte that makes the electrolysis possible. Through this process, the strong alumina compound is split into aluminium and oxygen.

Carbon anodes conduct electricity to the pot. This current subsequently exits through the cathodes that are located at the bottom of the pot. When the aluminium separates from the oxygen, it settles to the bottom of the pot, whereas the oxygen moves upwards to the

anodes, oxidises their carbon and produces carbon dioxide ( $CO_2$ ).

All the pots in the potroom are closed and have exhaust systems to minimise the emission of fluoride and dust particles into the atmosphere. The exhaust is channelled into a dry adsorption plant where fluoride and dust particles are cleaned from the exhaust gas. Approximately 99.8% of the fluoride is cleaned from the exhaust gas and recycled for use in the production process.

The aluminium is tapped from the pots into crucibles and transported over to the casthouse, where it is poured into furnaces. Various chemicals are added to the aluminium to bring its chemical composition up to customer specifications. When the correct chemical composition has been obtained, the aluminium is cast into slabs. The size of the slab is determined by the wishes of the customer. The aluminium is then transported by sea to Rotterdam. ISAL's customers produce a variety of goods from aluminium, such as sheets for the construction industry, printing plates, packaging for pharmaceuticals and cosmetics, soda cans and car bodies.



# 2010 key performance indicators

	Unit of measure	2007	2008	2009	Goals 2010	2010	Goals 2011 <sup>1</sup>
<b>Production and financial aspects</b>							
Production in potrooms	tonnes	182,230	187,397	189,533	>187,700	189,965	>185,100
Wages and wage-related expenses	millions		2,834	3,288		3,888	
Tax <sup>2</sup> and industrial charge	millions		792	348		2,072	
Goods and services purchased in Iceland	millions		5,469	4,927		6,828	
<b>The employees</b>							
Average number of employees	number		500	489		487	
Employee turnover	%		5.9	2.0		2.3	
<b>Accidents</b>							
category 1	number	0	0	0	0	0	0
category 2	number	0	0	0	0	0	0
category 3	number	0	0	1	≤1	0	≤1
category 4	number	37	30	25		22	
Near misses	number	120	120	152		162	
<b>Community</b>							
Complaints from the community	number	2	1	2		7	
General visitors	number			550	>500	664	>600
Grants	millions			25		46	
<b>Use of raw materials and resources</b>							
Power	Gwst	2,863	2,922	2,932		2,914	
Alumina	tonnes	348,059	357,928	365,799		368,059	
Electrode	tonnes	92,937	94,635	93,203		92,434	
Heavy Fuel oil	tonnes	4,152	3,468	3,322		3,305	
Diesel fuel	tonnes	445	463	368		375	
Propane gas	tonnes	189	151	122		122	
Cold water	m <sup>3</sup> /t	44.0	41.7	40.3	<42	44.3	<38
<b>Use of hazardous materials</b>							
Ramming paste	tonnes	501	326	256		192	
Pot repair materials	tonnes	1.49	0.83	0.49		0.76	
Collar paste	tonnes	2,248	2,763	2,778		2,387	
<b>Emission into the atmosphere</b>							
Total fluoride	kg/t Al	0.60	0.67	0.55	<0.67	0.50	<0.52
Dust particles	kg/t Al	0.83	0.88	0.73	<1.0	0.63	<1.0
Sulphur dioxide	kg/t Al	13.8	14.1	14.1	<15.0	13.6	<15.0
Greenhouse gasses	t/t Al	1.61	1.58	1.57	<1.60	1.59	<1.60
Thereof fluorocarbons	kg/t Al	38	23	17		20	
<b>Discharge into sewage</b>							
Oil and grease	mg/l	<2	<2-3.5	<3	<15	<4	<15
Aluminium	mg/l	0.02-0.28	<0.05	<0.02-0.12	<20 <sup>3</sup>	0.02-0.12	<20 <sup>3</sup>
Fluoride	mg/l	0.1-1.1	0.1-0.8	0.1-3.6	<50 <sup>3</sup>	0.1-2.1	<50 <sup>3</sup>
Suspended solids	mg/l	<2.8	0.2-2.0	<2.0-6.0	<50 <sup>3</sup>	0.25-9.0	<50 <sup>3</sup>
<b>Waste management</b>							
<b>General waste</b>							
Recycled	tonnes	19,523	20,514	21,864		18,538	
Disposed of in seashore landfills	tonnes	364	842	389		512	
Disposed of outside the site	tonnes	222	235	197		148	
<b>Hazardous waste</b>							
Recycled	tonnes	3,244	2,796	3,162		3,314	
Thereof aluminium dross	tonnes	3,181	2,752	3,118		3,280	
Spent potlining disposed of in seashore landfills	tonnes	7,061	5,187	3,031		3,223	
<b>Hazardous waste incinerated</b>							
Waste oil, oil sludge and filters	tonnes	192	299	241		144	
Perchlorate	tonnes	1	1.5	1		1	
Other	tonnes	3	11	1		1	
<b>Noise and environmental incidents</b>							
Noise at boundary (highest-lowest)	dB	55-66	49-67	48-67	<70	47-67	<70
Minor environmental incidents	number	3	2	3		0	

Revised in accordance with Government Regulation No. 851/2002 on Green Accounting  
Green numbers = goal reached  
Red numbers = goal not reached  
Black numbers = goal not defined

<sup>1</sup> The goals for 2011 are based on the extensive construction project work that will be initiated during the year in connection with a production increase etc. and the impact that this will have on the operation of the smelter while the project is on-going.

<sup>2</sup> In 2010, an energy tax was levied for the first time, and this is included in this number together with income tax and the industry charge. The energy tax alone amounted to ISK 350m for ISAL in 2010.

<sup>3</sup> Limit in the operating permit.



# Environment

**ISAL places great emphasis on constantly improving the Company's environmental performance. The Company sets challenging environmental objectives and has formed a clear policy in these matters.**

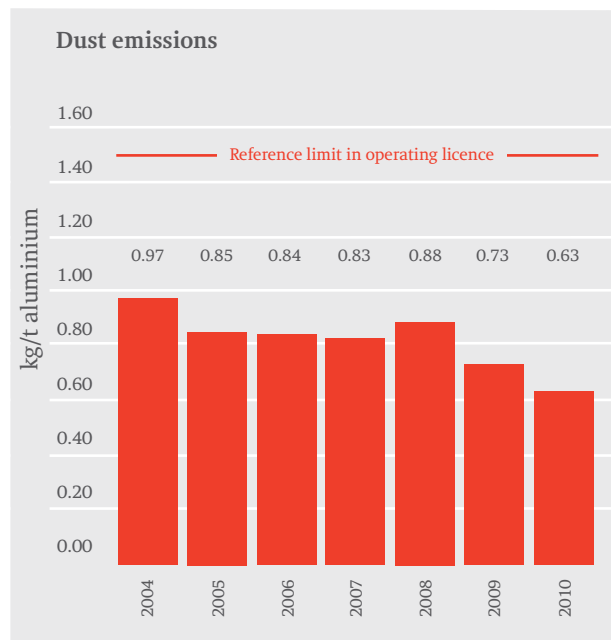
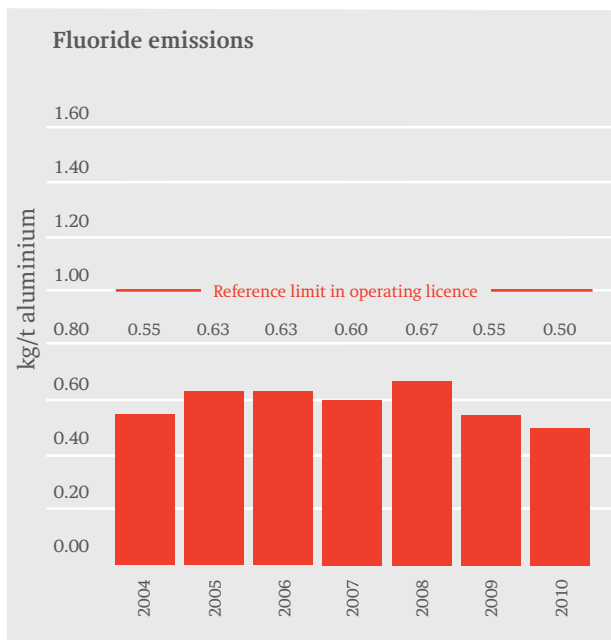
Ever since 1997, the Company has had a certified environmental management system in accordance with ISO 14001. ISAL was the first Icelandic company to gain such certification. An environmental management system entails, i.a., the defining of the environmental aspects of the operation, their control and minimising their negative impact. There are constant efforts to improve performance, and the system is reviewed annually by the Company's management. In order to ensure the management of environmental aspects, they must be monitored and measured, the operation must undergo a risk assessment in order to prevent possible environmental incidents and incidents must be investigated to prevent their reoccurrence. The training of the personnel and contractors is also a very important part of environmental management, as is informing the community of the Company's environmental issues.

## Environmental aspects

The environmental aspects that may have a significant impact on the environment have been defined as important. Environmental aspects are defined as being important if:

- reference limits are defined in laws and regulations.
- they may have a significant environmental impact, such as greenhouse gasses.
- the results of risk analyses indicate that this is the case.

The results published here are based on the above definition.





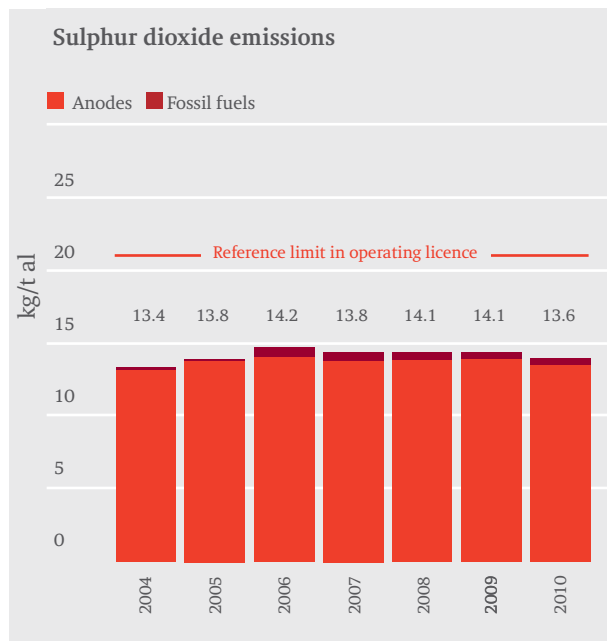
### Emissions into the atmosphere

The principal substances in emissions are fluorides, dust and sulphur dioxide together with greenhouse gasses, which will be discussed separately. Fluoride and dust particles originate in the electrolysis process. These substances are cleaned from the exhaust in the dry adsorption plants. The cleaning efficiency of the dry adsorption plants is 99.8% for fluoride. However, it has not been considered technically practical to measure the cleaning efficiency for dust. Nevertheless, emissions of fluoride and dust are constantly measured in the stacks of the dry adsorption plants and in the rafters of the potroom. Very good results were achieved last year – the emissions of fluoride and dust particles were the lowest ever recorded at the plant.

Many interacting elements led to this result, chief among which was the improved cleaning efficiency of the dry adsorption plants and the stability of the pot operation. Improvement projects to enhance the cleaning efficiency showed very good results. The project is described in greater detail elsewhere in this report. The emissions were well under the limit set in the operating license for fluoride and dust and the Company's objectives.

The objective for 2011 is to maintain these excellent results, despite the changes being made in the potroom in connection with the project to increase the current being in full swing. The project entails work and disruption that might, other factors remaining the same, cause a temporary increase in emissions.

Sulphur dioxide (SO<sub>2</sub>) is created through the burning of anodes during the electrolysis process, whereby the sulphur in the anodes combines with oxygen and forms SO<sub>2</sub>,



which cannot be cleaned from the pot exhaust by dry adsorption. SO<sub>2</sub> also forms through the burning of fuel oil that is used to heat the furnaces in the casthouse. The total emission is calculated based on a mass balance and, in 2010, was 13.6 kg for every tonne of aluminium produced, or approximately 3% less than in 2009.

This can be attributed to a lower proportion of sulphur in the anodes. SO<sub>2</sub> emissions can for the most part be attributed to the anodes, or 90% of the emissions. Approximately 7% can be attributed to aluminium oxide, and 3% are formed through the burning of fossil fuels (heavy fuel oil). The total emissions are well below the limits in the operating license.

### Monitoring air quality and vegetation

Air quality is measured at Hvaleyrarholt, where fluoride, sulphur dioxide (SO<sub>2</sub>), hydrogen sulphide and particulate matter are measured. The air quality station is operated in collaboration with the Environment Agency of Iceland. The Innovation Centre Iceland and Vista engineering firm are responsible for measuring, calibration and data collection.

It has been demonstrated that, of the above parameters measured in Hvaleyrarholt, SO<sub>2</sub> and fluoride are attributable to ISAL; hydrogen sulphide originates in geothermal energy power stations, and particulates are primarily caused by traffic and construction projects. The outcomes have been below the air quality limit set for public health and vegetation since the beginning of air quality measurements in 1994, and the measurements indicate that air quality at Hvaleyrarholt is very good. Environmental limits for the annual average of SO<sub>2</sub> are 20 micrograms per cubic metre (µg/m<sup>3</sup>), and the values at Hvaleyrarholt are always well below 1. Last year, the impact of the Eyjafjallajökull eruption could be observed as regards particulates, as the highest measurements were caused by the volcanic eruption. The volcanic eruption, however, did not appear to have had any influence on fluoride values.

At no time did the 24-hour average for SO<sub>2</sub> exceed the air quality limit for vegetation (50 µg/m<sup>3</sup>) or public health (125 µg/m<sup>3</sup>) during the year. The highest 24-hour average was 10.1 µg/m<sup>3</sup>, or one-tenth of the public health limit. The one-hour average for SO<sub>2</sub> also never exceeded the air quality limit for public health (350 µg/m<sup>3</sup>). The one-hour average for vegetation protection has not been defined. The highest one-hour average was 41.6 µg/m<sup>3</sup>, which is, as in the 24-hour average, one-tenth of the limit. The annual average was 0.92 µg/m<sup>3</sup>, while the vegetation protections limits for the annual average are 20µg/m<sup>3</sup>. There are no defined public health limits for annual averages.

Fluoride measurements have always been very low, or just above the detection limits for the measuring devices. The year's average was ≤0.04 µg/m<sup>3</sup> at Hvaleyrarholt, which is similar to previous years. For comparison, the Environment

Agency of Iceland uses as a reference a Norwegian limit for vegetation, which is  $0.3 \mu\text{g}/\text{m}^3$ .

In addition to air quality measurements, the fluorine content of vegetation is monitored, as fluoride emissions can have a detrimental effect on delicate vegetation and herbivores. Samples are collected from vegetation (pine, spruce and grass) twice every year, and the fluorine contents are measured to observe and monitor the effects. The Innovation Centre Iceland oversees these measurements. Samples are taken in an area that extends from the aluminium smelter itself to a distance of more than 10 kilometres. The results shown in the accompanying histogram are based on samples taken in a 3.7–6.5 km distance from the potrooms, i.e. outside of the dilution zone. If the concentration of fluorine in vegetation is less than 30 ppm (millionth of a part), it is not believed to cause harm. Measurements show that the concentration of fluorine in vegetation is far below these limits in the above area.

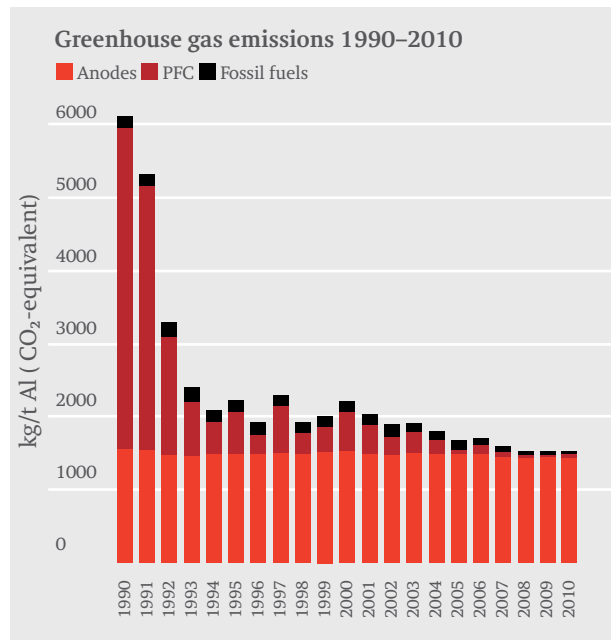
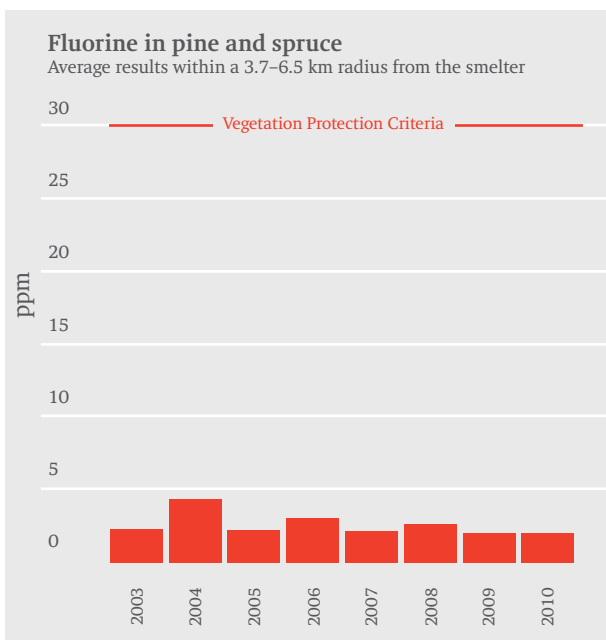
Samples are taken in two locations within the dilution zone. One of those was over 30 ppm. However, these were two-year-old pine needles in Gerdi, which is located near the boundary of the ISAL plant premises. 44 ppm of fluorine was measured in that location. The other sample from inside the dilution zone consisted of grass at the Straumur farmstead. This sample turned out to be well within reference limits, with a fluorine value of 3 ppm in the autumn and 9 in spring. With respect to the pine needles, it should be noted that samples other than those taken inside the dilution zone, i.e. all samples that were taken outside the dilution zone, were well within reference limits, and 12 ppm was by far the highest value.

### Greenhouse gasses

One of ISAL's principal objectives is to minimise the emission of greenhouse gasses. Outstanding success has been achieved in this respect. The greenhouse gasses that form in aluminium production are, on the one hand, carbon dioxide ( $\text{CO}_2$ ) and, on the other hand, fluorocarbons ( $\text{CF}_4$ ,  $\text{C}_2\text{F}_6$ ). Since 1990, the total emission of greenhouse gasses, measured in tonnes, has decreased by about 50% despite a doubling of production volume. The emissions per tonne of aluminium produced, therefore, have decreased by around 75%. This is primarily explained by the fact that efforts to reduce the emission of fluorocarbons have been successful. ISAL, in fact, achieved the best results among all aluminium smelters in the world in this respect in 2008 according to the report of the International Aluminium Institute (IAI).

Total emissions of greenhouse gasses in 2010 were 1.59 tonnes per tonne of aluminium produced, which is comparable to the two previous years. The emissions were below the Company's goals. At the same time, ISAL places great importance on using electrical power produced through hydro energy, which causes negligible  $\text{CO}_2$  emissions. According to the IAI approximately 42% of all aluminium smelters in the world are powered by electricity that has been produced with natural gas or coal.

ISAL has been allocated emission allowances for the period from 1 January 2008 to 31 December 2012. The emission of greenhouse gasses from the aluminium industry in Europe is expected to come under the EU emission trading system as of 1 January 2013.



### Waste issues

A major part of the waste created by the Company is recycled or reused, but the guiding principle is always of reducing waste formation to the greatest possible extent. Considerable recycling takes place on-site. For example, all slab off-cuts are re-melted in the casthouse. The main waste materials created through the operation consist of anode buttes, spent pot linings and aluminium dross.

Aluminium dross is a mix of aluminium and aluminium oxide that forms in the casthouse. The company Alur hf. handled the recycling of aluminium dross until August 2010. Since then, the dross has been recycled by the Aleris company in Germany.

Spent pot linings (SPL) are created when pots in the pot-rooms are relined. This occurs every 4–6 years for each pot. When pots are decommissioned, the linings, i.e. SPL, are disposed of in seashore landfills. SPL is mixed with shell sand which binds the fluorine. The seashore landfills are specifically designed to handle SPL and are regularly monitored and their impact examined. Repeated studies, as regards both bio-diversity as well as the accumulation of heavy metals, fluorine and PAH materials in mussels, indicate that the effects of the seashore landfills on the biosphere is small and the pollution level is low. The most recent study confirms earlier conclusions. The study was carried out in 2008. The results of the measurements are available, although the researcher has yet to publish his report.

Anode butts are the part of the anodes that do not burn and remain behind. On average, this is approximately 18% of each anode. The anode butts are returned to the anode manufacturer for recycling. 84% of the waste generated during the operation of the aluminium smelter is recycled.

### Other environmental factors

Drain water from the aluminium smelter is cleaned in two ways before being channelled into the sea, on the one hand in septic tanks and on the other in oil and grease traps. They are monitored regularly and emptied as needed. Samples are taken every year from all outlets and sent away for chemical analysis. The samples are measured for oils and grease contents, fluorine ions, aluminium ions and suspended particulates.

Noise levels from the aluminium smelter are measured at 16 locations on the boundaries of the Company's site. The main sources of noise are the unloading equipment and the dry adsorption plants. Measurements are taken during unloading. The reference limits at the boundary are 70 dB. All measurements during the last 5 years have been within these limits.

### Environmental incidents

In 2010, 11 environmental incidents were recorded by employees. Of these, there were no serious incidents. No oil reached drains or soil, and the exhaust emissions were within set limits. All incidents that occurred were examined in order to find their cause and were evaluated with respect to environmental impact. Failures were corrected, and oil was cleaned up without delay, i.e. before the end of the shift.

### 2010 at a glance

A new process was developed to record all waste and hazardous substances leaving the ISAL site and to trace their reception and disposal. This process was adopted in early 2011.

A process for auditing reception facilities for waste materials and hazardous substances and other suppliers was introduced and deployed in 2010. The purpose of the audits is to evaluate how much importance suppliers and reception facilities place on environmental, health and safety issues and at the same time to assess their performance in this regard. Suppliers and reception facilities were generally very positive towards these audits and viewed the observations as an excellent opportunity for corrective action.

A double-shell mobile oil tank was purchased with pumping equipment and an oil leakage protection device in order to reduce the risk of oil leakage at the ISAL site during the pumping and transport of waste oil. Equipment was also purchased to transport and pump oil into equipment..

A new risk assessment using the Rio Tinto risk assessment system was conducted with respect to the Company's main environmental aspects in co-operation with employees and process owners.

### Areas of focus in 2011

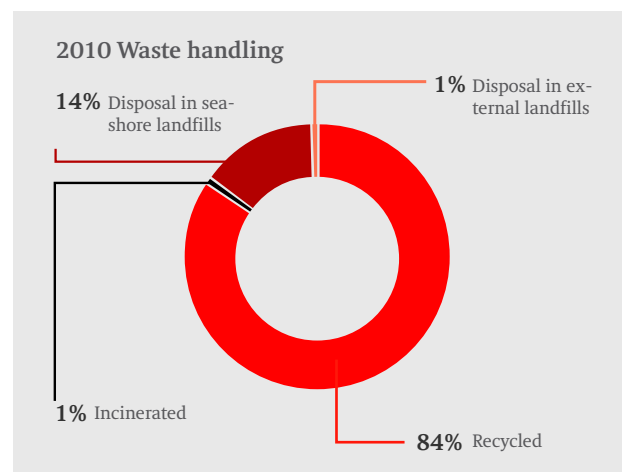
ISAL has decided to initiate numerous improvement projects in 2011 to enable the Company to maintain its success in environmental matters. The principal improvements are:

To reduce the risk level of environmental aspects with defined action plans for the main risks.

To initiate targeted audits on leakage protection systems and the control of hazardous materials.

To increase the reliability and decrease uncertainties in the measurement of water usage, oil usage and emission through potroom roofs.

To improve the inspection of contractors on the ISAL site. This will be one of the focal points in 2011.

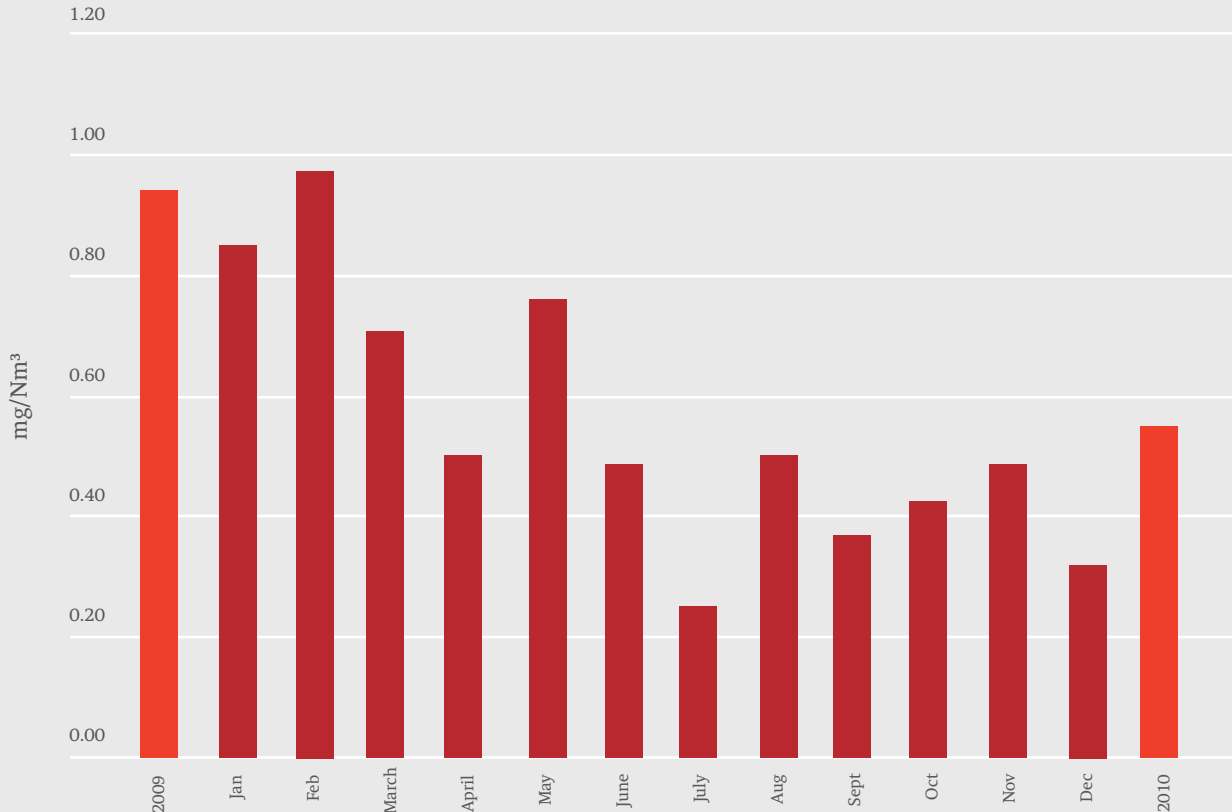




# *BRAVO award for decreasing fluorine emissions*

Emission of fluorine from dry adsorption plants 1 and 2

■ Annual average ■ Monthly average



ISAL's dry adsorption plants play a key role in minimising the emission of fluoride and dust particles from the potrooms. The first plants were brought on-line in 1981–82, at which point the emissions of fluoride were reduced from 15–16 kg per produced tonne of aluminium to 5–7 kg.

The next big step involved improvements to the pot hoods that cover the pots. Automatic hoods were installed on the pots in 1991, at which point the emissions were reduced to approximately 1 kg per tonne of aluminium. In recent years, a variety of improvements have been made in order to further reduce the emission of fluoride, which is at present 0.5 kg per tonne.

A recent improvement project was carried out at the initiative of two ISAL employees, Bjarni Valdimarsson and Gudmundur Ágústsson. They observed fluctuations in the flow of alumina in dry adsorption plants 1 and 2. Such fluctuations reduce the adsorption capacity of the plants. They designed and installed equipment that provides better alumina feeding into the stations. This results in better alumina utilisation for fluorine adsorption, which again reduces fluoride emissions from the plant. The employees received the Rio Tinto Alcan BRAVO award in the fields of health, safety and environment for the improvement project.

The benefits of the improvement project can be seen in the accompanying graph. The new equipment was set up in early March and had a big and obvious impact. The annual average volume of fluorine from dry adsorption plants 1 and 2 was reduced by 40% from one year to the next.





# Employees

**A large number of people with varied backgrounds work at ISAL. The range is wide, and the Company boasts of a pool of knowledge that is an important contributing factor in its success.**

Managers, middle management and specialists number close to 90, and more than 70 employees have university degrees. There are approximately 120 employees at ISAL with vocational education – car mechanics, mechanics, electricians, cooks, electronics engineers, painters, masons, etc. In addition, 154 of the current staff have completed the basic level education in the Company school, all in all 195 since the school was established, and an additional 22 have completed the advanced level.

Employee turnover has been very low at ISAL, and the average tenure of employment high, which unequivocally indicates that the employees generally like working for ISAL. The salary is competitive, and in addition, the employees are offered free transport to and from work, meals are free of charge during working hours and work clothes are provided.

From the age of 55, the majority of employees can shorten their work quota by up to two months per year while still receiving payment into their pension fund as if they were carrying out full-time work. Employees may also take “early retirement” at the age of 65–67, in which case the Company will continue to pay into the employee’s pension fund as if he or she were working full-time.

ISAL has always placed great emphasis on education, and the Company school is the largest aspect of its educational activities. The goal of the school is to provide unskilled ISAL workers with an opportunity to further their special training, to increase their possibilities to work their way up within the Company and to strengthen their competitiveness. The school offers specialised vocational training in the aluminium industry. Employees attend the school free of charge. Classes are held either during or after working hours, and employees receive half wages for attending classes that take place outside working hours. Graduation provides the employees with a more than 10% raise in wages.

## 2010 at a glance

Every year, the Company provides employees with a number of courses that cover various fields. In 2010, the number of course hours taken by employees was approximately 12,000. Great importance has always been placed on education on safety, health and environmental issues. Examples of courses held in 2010 include an annual first aid course, a fall protection course and a course on work in confined spaces. All employees, moreover, take part in monthly educational meetings on safety, health and environmental issues. Examples of other courses held during the year include introductions to the operations of Rio Tinto and its ethics, courses on employee interviews and education on English terms that are used in the aluminium industry.

The ISAL personnel policy was revised in 2010. The policy has not, however, been fully implemented, as the policy of the parent company is under revision and ISAL intends to be in compliance with that policy.

Moreover, employee interviews were introduced in all departments of the Company as a reaction to the results of a Rio Tinto employee survey which was conducted last year. The interviews have been well received and have been of help to both employees and management. They are a good venue to discuss everything that involves the workplace, the job and the employees’ well-being in the workplace.

The procedures for welcoming and training recruits were also revised and improved last year. The subject matter of the courses for recruits was revised, keeping in mind the issues of health, safety, environment and quality. The number of courses for recruits was increased, the checklist for mentors was reviewed and all new employees now receive an introduction to the principal risks and information about the Company during their first days at work. Furthermore, all new employees attend a course for recruits during the first three-to-four months after they begin working.





In 2010, 11 employees attended classes in the basic level programme of the Company school and 13 employees attended the advanced level.

In November, ISAL, as the first Icelandic company along with Marel and Deloitte, signed the Women's Empowerment Principles, an effort on behalf of UNIFEM and UN Global Compact which aims toward mobilising companies to work for gender equality. This effort is based upon seven principles which the signatory companies should use as a guide. ISAL thereby confirmed its continued commitment to gender equality, which the Company has been dedicated to for a long time, as expressed for example with the adoption of an equality policy. The Company was awarded the Equal Status Council's equal rights award in 1996 and the Hafnarfjörður equal rights award for 2001. The membership to the UN Treaty on Equal Rights will act as an encouragement to the Company to continue to improve its performance.

The results of a Rio Tinto employee survey were published during the year. The object of the survey was to maintain uniform measuring of the experience and well-being of Rio Tinto employees all over the world. In comparison to other Rio Tinto work stations in Europe, ISAL's results were the highest in 12 of 15 categories. ISAL's best results were in the category "health and safety", "policy and values" and "efficiency and flexibility". The results of the survey indicate that ISAL needs to do better in the categories "rewards and benefits" and "performance, motivation and acknowledgement".

The average number of employees in 2010 was 487, and the personnel turnover was 2.3%.

#### Areas of focus in 2011

Considerable importance will be placed on management and the training of managers in 2011. The issuing of a manual for superiors is planned. The purpose of the manual is to make it easier for superiors to resolve various personnel issues and to ensure consistent procedures and solutions to issues that might arise. Moreover, the adoption of a management training system from Rio Tinto, intended for managers who are in positions of authority, is also planned. This is a very extensive training plan which will take over 6 months to complete per manager. This training plan will be run in 2011 and 2012. A review of plant group leaders' requirements for education will also be performed and a programme subsequently set up to meet their needs.

A new arrangement for "BRAVO", a programme for awarding employees and recognising their contributions, will be introduced during the year. The new arrangement is intended to better motivate employees and to give them a platform to praise their co-workers for good performance and initiative.

# Company school



The Company school has been operated at ISAL since 1998, and 195 employees have already graduated from the school's basic level programme with the title Certified Skilled Worker. An advanced level programme was established in the autumn of 2004, and 22 employees have graduated with the title Certified Aluminium Industry Skilled Worker.

Eleven employees are currently attending classes in the basic level programme and will graduate this spring. At the secondary level, there are 13 employees attending classes, and they will graduate near the end of this year. At present, 154 of the employees who have graduated from the study programme from its beginning are still working for ISAL.

ISAL invests heavily in educational issues, and the Company school could be said to play the most prominent part. Educational material and a curriculum was prepared, which then received accreditation from the Ministry of Education in 2002 as curricula for studies at the national secondary school level. The programme was evaluated as being the equivalent of 24 credits, and this accreditation by the Ministry has motivated our employees even further to use the learning process and the culture of learning developed by the Company. The Company was awarded the Occupational Learning Award in 2000 and again

in 2006. This award is given by the Council on Occupational Learning and the Skill Society.

The work by the Company school is based on a curriculum which states the school's objectives and vision and the subjects considered best suited to these objectives. The teaching arrangements and methods are specified, as is the evaluation of the progress of study and educational performance. Teachers at the school are for the most part secondary school teachers and specialists in their field and play a key role in disseminating their knowledge with the help of teaching materials. The focus is placed on the importance of quality management and assessment of the education in order to ensure continuous improvements. The studies must always take into account rapid technological developments, the continuously changing work environment at ISAL and the needs of our employees.

Most of the school's textbooks are published by the Company and are specially designed for the subjects taught. New textbooks have regularly been published, and most of the authors are employees and/or teachers at the school.

The general rule regarding admission qualifications is that the employee has been employed for 45 months, or close to four years. After such time, employees should have gained a good grasp of their job and attained sufficient work experience to be able to learn about the theoretical part of the production. The school has been a success. Since it began, the productivity of the Company has increased, the employees have a better understanding of each other's jobs, the programme has increased the skills and self-confidence of the employees and many have furthered their careers after completing the programme.







# Safety

Great importance is placed on safety issues in the operation of ISAL, and work on making the workplace accident free is continuous. We have had great success in safety issues, and there has been no serious work-related accident at ISAL since 2006.

Work-related accidents include accidents resulting from unexpected and external events that can be attributed to external factors at the workplace. Work-related accidents are categorised into four different categories according to their seriousness. Incidents in categories 1 and 2 are considered serious.

Category 1 includes fatalities and accidents that result in irreversible disability and prevent the individual from returning to the labor market. Category 2 includes work-related accidents that involve reversible injuries or minor irreversable damage or impairment and result in the employee being temporarily unable, according to medical advice, to fulfil his/her duties. Category 3 includes recoverable physical injury that requires treatment but does not impact the person's duties. Category 4 includes minor and temporary discomfort or symptoms that need first aid but no medical intervention. In addition, there are category 5 incidents, which cover all near misses, i.e. occurrences that could have resulted in an accident. Employees are encouraged to record all near misses, with the goal of being able to prevent similar events from recurring.

In 2003, ISAL became the first company in Iceland to obtain certification that the Company's occupational health and safety management system meets the international standard OHSAS 18001. The standard specifies requirements in the field of safety and occupational health management and is intended to ensure that safety and health issues are an inseparable aspect of the assessment and decision-making process in investments, construction, operations and the purchase of goods and services.

The Company conducts numerous risk assessments every year. They are performed for all construction work, new work procedures, new equipment and materials. All jobs in the plant have been risk assessed, as have all work

areas. Moreover, all employees employ a methodology called "Take five", which involves conducting a short risk assessment at the beginning of each task or each shift.

All the Company's personnel attend a safety meeting with their own shift or working group at least once a month. The meetings are used to review the accidents and near misses that have occurred during the past month and to provide information on what improvements were made following such events. There is also a review of the educational material intended to maintain knowledge and safety awareness. Other safety education includes courses for recruits, fall protection courses, heavy machinery courses, boom crane courses, an arc flash safety training course and a course on locking-down hazardous equipment and hazardous energy. Employees are also invited to attend a first aid course that is held every year.

The ISAL emergency response management team has been operated for several years. Emergency drills have been conducted twice every year, with the purpose of exercising responses to emergencies in a systematic and organised manner. The emergency response management team was mobilised during the year when there was a fire in the basement of the casthouse in August. The team had previously been mobilised because of a power outage in potroom 3 in 2006.

ISAL operates its own fire-fighting department, which has its fire station inside the Company's operating area. The ISAL fire-fighting department consists of 42 employees from the production departments and five employees from ISAL security. The role of the fire-fighting department is to react to any circumstances in which the life and health of the employees may be compromised. The principal role of the fire-fighting department is fire fighting, rescuing people from dangerous situations, performing fire prevention inspections, responding to pollution incidents and salvaging valuables.

ISAL conducts its own fire prevention inspection in accordance with an agreement with the Reykjavík-area fire brigade, which performs an audit of the inspection. There are 12 inspections conducted every year where fire prevention is reviewed and a general safety inspection of the work areas is carried out.



### 2010 at a glance

There were no accidents during 2010 in categories 1, 2 and 3 at ISAL. There were 22 category 4 accidents. The most common were spraining of ankle, or 6 incidents. Other incidents under this category include minor hand injury, particles in the eye, etc. The number of reported near misses was 162 during the year.

The plan was to work towards further strengthening of systematic communications and dialogue between management and employees about safety issues in every work area with the aid of a new method that is called "HSE interaction". (HSE is short for health, safety and environment.) Introduction of the methodology was not reached in 2010. On the initiative of the parent company, an approach called "Zero Harm Culture", which to a large degree is built on systematic HSE communications, will be adopted.

"Take five" is a methodology applied to pre-task risk analysis that has been further entrenched as a rule of procedure at the work site. "Take five" means that employees allocate some time prior to each task to evaluate the possible risks involved and to prepare the task, keeping such risks in mind before beginning the work. A checklist has been attached to work orders for specialised trade work, and pre-risk analyses are one of the main topics for discussion in the relations between the management and the employees about HSE matters.

Work on preventive measures against metal explosions was completed during the year. There was an extensive adoption of better quality personal protection equipment for personnel working with steel in the anode rodding plant and the cathode repair shop as well as for those handling molten aluminium.

Targeted efforts were spent on strengthening management of contractors performing work on ISAL's premises. Work began on adopting a new management system that entails significantly increased contact with contractor companies and their personnel, as well as increased training and more formal permits as regards project preparation.

### Areas of focus in 2011

A new system for handling and processing HSE incidents was adopted in 2010. With the new system, each step within the whole management procedure will become more systematic, from recording the incident through to remedial action. The system will be developed even further during the year, and all incidents and remedies relating thereto will be presented to personnel during monthly HSE meetings.

A new method of risk assessment was adopted in 2010 which addresses the risks that might cause fatal accidents, such as falling from a height, electricity, working in confined spaces, mobile equipment traffic, etc. The method is called SQRA or "semi-quantitative risk assessment". The goal for 2011 is to reduce risk levels by about 20% by means of various improvements throughout the plant.

As mentioned above, the approach called "Zero Harm Culture" will be adopted during the year. This is to a large degree built on systematic HSE communications. The approach is based on the idea that we have a choice of how high the Company's safety level is. A clear vision for the future, strong leaders in all areas and open HSE communications are the basis for this. The focus is on completing the adoption of the system and training leaders during the year.

Emphasis has been placed on increased communications due to the extensive construction work at Straumsvik, not the least communications between the Company's personnel on the one hand and those who work on the construction project on the other. The project has a great impact on the operation, and it is therefore important that all decisions and actions are delivered in a timely manner in order to ensure safe preparations for all tasks. Improved communications, new regular meetings and certain organisational changes relating to roles and positioning have already entered into effect.

## Outstanding safety performance



Alcan Iceland was awarded the Rio Tinto Chief Executive Safety Award in 2010. The recognition is awarded for outstanding safety performance over the past two years. Tom Albanese, Rio Tinto's Chief Executive Officer, presented the award on 15 December at a ceremony in Straumsvík.

ISAL's safety performance and the attitudes of management and employees toward safety has been noticed by the parent company for several years. Four Rio Tinto sites were nominated for the award, but the final decision was based on the evaluation of specialists from Rio Tinto who visited ISAL earlier in the year. Their findings showed that managerial focus on building and maintaining a high level of responsibility within the Company in order to prevent accidents was both visible and sincere. The specialists also commented on the unequivocal view of personnel and contractors that it is possible to perform every job in a safe manner.

In his address during the award ceremony, Mr. Albanese pointed out that this award is the most important award given for safety within the Group. Rio Tinto is one of the world's largest companies, and it is therefore a great honour for the employees of Alcan Iceland to have received such an award. It is a good reflection of the high level of ambition of all those working for the aluminium smelter to attain outstanding results, not only in safety, but also as regards other aspects of the operation.

The ceremony was well attended by ISAL employees, and there was an opportunity to ask Mr. Albanese questions, an opportunity which several employees took advantage of.







# Health

The purpose of the work performed in the field of health at ISAL is “to promote a healthy lifestyle that provides fulfilment throughout life”. The policy is to develop a good and healthy work environment that is not conducive to work-related illnesses and, at the same time, to encourage employees to assume responsibility for their own health and well-being.

It is important to monitor the working environment and to constantly measure it for the purpose of reducing or eliminating risks at their source. This applies to strain caused by chemicals such as fluorine, dust and sulphur dioxide and other strain factors such as noise, vibration and strain on the musculoskeletal system. A measuring plan is prepared annually for the industrial hygiene measurements to be conducted. The risks that risk assessments have indicated are measured at each work area or for each job that must be monitored. The results of the measurements are disseminated among personnel. In addition, managers review the results with respect to possible improvements.

Regular medical examinations of the personnel are conducive to the prevention of work-related illnesses. All employees undergo an examination, either annually or every second year. Particular attention is paid to measuring the functionality of the lungs, hearing and vision as well as blood pressure and checking body mass standards. Thus, an effort is made to monitor not only the factors that can be work-related, but also general health. Employees are encouraged to take good care of their health and to obtain advice thereto from the doctor. Annual vaccinations against influenza are offered.

One element of promoting a healthy lifestyle is a fitness-training grant offered to employees. On average, more than 200 employees take advantage of the grant. Employees have also been encouraged to participate in the national initiative “Cycle to work” and this has been well received. ISAL has, in fact, won the competition for the past six years in the category of larger companies. It is safe to say that the competition, held in May of each year, has had a great impact on the lifestyle and health of many employees.

There has also been huge participation in the Reykjavik Marathon among employees. The Company donates funds which the running teams allocate to charitable causes of their choice.

**2010 at a glance**

A policy for an alcohol-free and drug-free workplace was adopted in the autumn. Presentations were held for the employees to review the policy and what may be expected in the future in this respect. Employees generally welcomed this policy, as it aims toward increasing safety at the workplace.

Participation in the "Cycle to work" campaign was similar to that of the past few years. About 40% of employees were active participants, and ISAL won the competition for the seventh year in a row in its category.

The Reykjavík Marathon took place as usual, with 105 employees participating. Ten charity organisations benefited from this participation in the form of a donation amounting to ISK 100 thousand each.

Mapping of dust particle sources in the working environment with the PIMEX method began in the summer of 2010. The method consists of making a video recording of work practices and simultaneously measuring dust, noise or other factors. The main focus was on measuring dust, although the first steps of taking noise measurements were also taken. Two summer workers were recruited for this job; university students who had both previously worked for ISAL in various departments of the Company. The results of the measurements were presented to management and have led to improvement efforts in several locations.

The advantages of the PIMEX method are undisputed. This is a valuable addition to earlier measuring methods and shows precisely where the sources are and makes it feasible to undertake systematic improvements. Furthermore, the method is a good educational tool that can be used to teach employees the correct practices and what consequences different work procedures may have on the quality of the work environment.

**Areas of focus in 2011**

The PIMEX measurements will be continued during the summer of 2011, as the experience of them has been very good. The primary focus will be on measuring noise. In addition, new instruments will be used to measure fluorine levels, and dust particles will be measured to some extent; confirmation will be sought that the improvements made last year have been successful.

Measurements of vibration strain will begin during the year. Such strain affects both hands and arms as a result of working with handheld tools as well as affecting the whole body as a result of working with heavy machinery.

Considerable work has been invested in improving employee health monitoring. For that purpose, the Company employs a registered nurse and a doctor. At the moment, there are two doctors sharing this position. One of the innovations offered is a health risk assessment. This involves examining the main risk factors for the most common lifestyle diseases as well as the employee's health history for the purpose of preventing such diseases at a later stage.

## Cycle to work



The National Olympic and Sports Association of Iceland launched the “Cycle to work” competition between teams of employees from different companies in 2003 as a motivation to employ their own energy to travel to and from work. The competition has been held annually in May and lasts for three weeks.

ISAL's participation in the contest began in 2004 and had a slow start. The number of participants, however, rose steadily until it reached the maximum number of participants in 2007, when 72% of the personnel participated and covered 36,423 km. Since then, an average of 40% of ISAL employees have participated in the initiative.

From the onset of its participation, ISAL has won both competition categories, i.e. the number of kilometres cycled and the number of participation days, in its category among the largest companies, or a total of seven times.

Cycling conditions were revolutionised when ISAL, in collaboration with Hafnarfjörður municipality, had a pedestrian path laid from Hafnarfjörður to ISAL. The path lies through the lava field parallel to the Reykjanes highway. This greatly enhanced the safety of cyclists given the fact that it is not ideal to cycle on a highway where traffic is quite heavy and fast. The path also opened up the opportunity to walk to and from work, and many employees have taken advantage of this, particularly during the summer months.

The increased employee interest in regular physical exercise may no doubt to some degree be attributed to participation in “Cycle to work”. Many employees have taken their first “step” in using this mode of transport and have continued to cycle throughout the summer and some even all year round. Walking and cycling is very good exercise, and it is, therefore, an excellent idea to enjoy it on the way to and from work and thereby contribute to better health and well-being, not to mention the environmental rewards that such mode of travel brings by reducing greenhouse gas emissions and the economic benefits of saving money on petrol.





# Communities

The Company's stated goal is to ensure that its operations are carried out in harmony with the environment and the community. In order to attain this goal, it is important that the Company knows the community in which it operates, clearly disseminates information to stakeholders, listens and responds to the community's justified demands and expectations, embarks on collaboration with the community as appropriate and endeavours to benefit others.

A great deal of importance is placed on informing the public about the Company's operations. ISAL receives numerous requests to visit the Company every year and tries to accommodate as many groups as possible. Guest groups are given a presentation of the Company's operations and tour of the main work areas.

The Company maintains a website containing detailed information about its activities. In addition, the Company regularly publishes newsletters that are distributed to all homes in Hafnarfjörður.

A record is kept of all complaints received by the Company, and efforts are made to ensure that such complaints are correctly handled.

For the purpose of gauging how successful the Company is in achieving the goal of operating in harmony with the community, the public's attitude toward the Company has been regularly surveyed since the summer of 2009.

The Company's single largest project in the field of social issues is its support of children's and youth activities, which is managed by the Sports Association of Hafnarfjörður, an umbrella organisation for all sporting clubs in the town. In recent years, this support has amounted to ISK 6m. Alcan's Social Fund was established in 2005. The Fund allocates up to ISK 20m every year to a wide range of projects in five fields, namely: safety, health and exercise, the environment, education and culture, the last of which includes charitable causes. The Company also sponsors

incidental projects outside the Social Fund. Moreover, ISAL has been responsible for awarding the Icelandic Optimism Award since 2000. This is a cultural award that has been presented annually since 1981.

## 2010 at a glance

As stated earlier, ISAL focuses on working in harmony with the community. A principal measure of success in this respect are the results of regular attitude surveys performed by Capacent Gallup. In 2010, an average of 48.5% Icelanders had a very or rather positive attitude toward the Company, 28.7% were neutral and 22.8% had a very or rather negative attitude. Among Hafnarfjörður residents, 64.1% had a very or rather positive attitude, 19% were neutral and 16.9% had a very or rather negative attitude. There were negligible changes in attitudes on a national level between 2009 and 2010. In Hafnarfjörður, however, positive attitudes increased and negative attitudes decreased.

The Company set itself the goal of hosting and presenting ISAL to at least 500 members of the general public in 2010. The result was 664 guests. Only those guests who were given a thorough presentation of the Company and a tour of the main working areas are included in this figure. The majority of guests were university students.

The Company received seven complaints from the public in 2010, a considerable increase from the previous year. The main reason for this was a malfunction in the silencer of the alumina unloading crane, which caused significant noise pollution in nearby areas. The silencer was sent for repairs, and noise levels on the lowest frequencies were thereby reduced. In the long term, the unloading crane will be either rebuilt or replaced. This means that noise levels during unloading will be reduced. The decision on which option to select will be made in 2011. There were three complaints of smoke emissions from the plant. In two cases, the smoke was from the casthouse. The causes were, on the one hand, a faulty fuel injector in the furnace and, on the other, the start-up of a furnace after relining. The third case involved a pot leak in one of the potrooms. There was one complaint of a foul smell. The source of the smell could not be traced. There were follow-ups on the complaints and the complainants were contacted in all cases.

ISAL's grants and sponsorships in 2010 amounted to ISK 46m. The Social Fund awarded approximately ISK 13m to 36 entities selected from over 200 applications. Support to children's and youth activities managed by the Sports Association of Hafnarfjörður amounted to ISK 6m in accordance with a three-way agreement with the Association and Hafnarfjörður municipality. Near the





end of the year, the agreement was renewed, with ISAL's annual contribution increasing from ISK 6m to ISK 9m. The amount associated with the Icelandic Optimism Award was, as before, ISK 1m. Grants and sponsorships to various sporting clubs amounted to just under ISK 8m during the year, a considerably higher amount than the year before. This was partly due to the fact that the Company decided to invite the public to two high-profile handball games in Hafnarfjörður to mark the occasion of making the decision to embark on the large investment projects. A contract cementing a partnership with the Wetlands Institute of the Agricultural University of Iceland, involving the restoration of wetlands, was signed in 2010, with ISAL undertaking to contribute ISK 40m to the project during the four-year term of the contract. The project was allocated approximately ISK 5.5m in 2010. The goal of the project is to reduce greenhouse gas emissions, as a large volume of such gases are released from the soil following drainage of wetlands. The main reason for ISAL embarking on this project is that its operations cause considerable emissions of greenhouse gases, while the Company has more or less achieved as much as is realistically possible in terms of reducing such emissions from the plant itself. The community project Frístundabíllinn (a bus that transports children to and from their leisure time activities outside school hours such as for music lessons, sports, etc.) formally began operations in 2010. Involved in the project are the municipality of Hafnarfjörður and Hópbílar bus company, with three private companies as main financial sponsors. ISAL is one of them and allocated ISK 3.5m to the project in 2010. The Hafnarfjörður Search and Rescue Team received a grant of ISK 2.5m in 2010; a portion of the grant was used to hold a fireworks show on New Year's Eve. ISAL was the principal sponsor of the Hafnarfjörður Christmas Village, supporting this tradition with ISK 2m. Finally, it

should be noted that over 100 employees participated in the Reykjavík Marathon in 2010 and ran in support of various causes, raising a total of ISK 1m provided by ISAL. Moreover, the Company sponsored numerous associations and organisations with smaller grants, advertisements, sponsorship lines in newsletters, etc. These expenses amounted to a total of ISK 2.5m.

A special effort was made to better familiarise employees with the varied operations of Rio Tinto and to highlight the Group's values. Also, a booklet containing Rio Tinto's revised global code of conduct, "The way we work", was presented and distributed.

#### Areas of focus in 2011

The Company plans to begin wetland restorations next year. The Company will contribute up to ISK 40m toward the project over the next four years. The overall goal of the agreement is to restore approximately 5 km<sup>2</sup> of wetlands and thereby halt annual emissions of approximately 2,500 tonnes of carbon dioxide.

A social risk assessment is planned. The results of this assessment will be incorporated into the formulation of areas of focus for the next few years.

Work will continue on improving relations with our immediate neighbours. An assessment will be made of whether to establish a consultation group among residents of Hafnarfjörður to create a venue for collaboration and regular exchanges of opinion on the operation of the aluminium smelter and the interests of the smelter and the community.



# Restoration of wetlands



At the end of November, Alcan Iceland and the Wetlands Institute of the Agricultural University of Iceland entered into a four-year partnership agreement on wetlands restoration for the purpose of reducing greenhouse gas emissions.

The goal of the agreement is to restore approximately 5 km<sup>2</sup> of wetlands and thereby halt annual emissions of approximately 2,500 tonnes of carbon dioxide. This is equivalent to removing approximately 600 private vehicles from use. It should be noted that this amount of carbon dioxide would otherwise continue to be released from the soil in the respective area each year for many years and probably decades to come, so that the total achievement during the “lifetime” of the action is much greater than the amount of annual emissions that are halted. Another goal of the agreement is to develop methods to measure and assess with acceptable certainty the results of restoration with respect to greenhouse gas emissions.

Wetlands contain large volumes of organic materials. If the water disappears, e.g. when the land is drained, these materials begin to degrade and form carbon dioxide. Cautiously estimated, approximately 2 million tonnes of carbon dioxide are released from drained land in Iceland. These emissions can be stopped in many places by filling in ditches. It is clear, therefore, that the restoration of wetlands provides considerable scope for reducing greenhouse gas emissions.

Accountability is one of the values of the aluminium smelter in Straumsvík. This means, among other things, facing the fact that aluminium production leads to considerable greenhouse gas emissions and attempting by all reasonable means to reduce such emissions, stated Rannveig Rist, the General Manager of Alcan Iceland when the agreement was signed. “In this, we have been very successful, as since 1990, emissions for each produced tonne have dropped by

75% and are currently among the lowest known in any aluminium smelter in the world. As we are approaching the theoretical limits for what can be achieved in this respect within the plant itself, we decided to examine the possibility of implementing mitigating measures elsewhere. The result was that the restoration of wetlands would be the best option. This is our next big step in environmental matters and I have high hopes for the project.”

“Over the course of the past decade, research carried out by experts at the Agricultural University of Iceland has shown the extent of carbon dioxide emissions from drained land and, at the same time, that the trend can be turned around through wetland restoration,” said Hlynur Óskarsson, Director of the University’s Wetlands Institute on the same occasion. “However, we have lacked both the time and the funds to develop methods to assess and certify the success of restored areas as regards greenhouse gas emissions. This is a shame because landowners are quite positive toward the idea. The agreement with Alcan Iceland will enable us to work on this project, making it a pioneering endeavour that will be of use to all who, in the future, select this method to reduce greenhouse gas emissions.”

Wetlands also support greater bio-diversity, not least as regards birdlife. In addition, one may expect participation in mitigating measures in climate affairs to be considered an attractive option for landowners, for example those seeking to create opportunities in eco-tourism.

A five-member project management team manages the implementation of the agreement. Alcan Iceland has appointed two members, the Wetlands Institute two members and the Ministry for the Environment one member. The chairman of the project management team is Hlynur Óskarsson, and the representative from the Ministry for the Environment is Guðmundur Halldórsson, Head of the Research and Development Department of the Soil Conservation Service of Iceland.

The progress of the project and its results will be published as the project progresses and the results become available.







# Economic factors

The Company's economic impact is not only in the jobs it creates, but also in all the Company's activities, including the goods and services it purchases in Iceland and the foreign currency income that it brings into the Icelandic economy.

The Company's turnover in 2010 amounted to USD 469m, or ISK 57.9bn. The following is a summary of Alcan Iceland's main expenditures in Iceland, other than electricity purchases.

The average number of employees was 487, almost unchanged from the previous year. Wages and wage-related expenses amounted to ISK 3.9bn, as opposed to ISK 3.3bn the year before.

Calculated income tax (payable next year) together with the industrial charge amounted to ISK 1,721m in 2010. This amount was ISK 348m in 2009. The increase is attributable to improved financial results following the recovery of the price of aluminium.

A new energy tax was collected in Iceland for the first time in 2010, amounting to ISK 350m for the Company, or just under ISK 1m per day. As a result, the income tax, the energy tax and the industrial charge amounted to a total of ISK 2.1bn.

Alcan Iceland purchases goods and services from hundreds of Icelandic companies. Considering only the companies from which the plant bought goods or services for ISK 500,000 or more, the number of companies was 246 in 2010. The total amount of purchased goods and services in Iceland in 2010 was ISK 6.8bn, as compared to ISK 4.9bn the year before. The increase can be attributed to costs resulting from preparations for and execution of large investment projects involving an increase in production and change in the product mix. It should be noted that the above amount includes various public levies such as property tax, harbour fees, water levies, customs dues and vehicle taxes.



A considerable proportion of this amount is paid to Hafnarfjörður, or approximately ISK 2bn in 2010. Payments to companies and contractors in Hafnarfjörður were just under ISK 1.8bn of this amount, and payments to Hafnarfjörður municipality amounted to ISK 270m, whereof the property tax was ISK 241m and harbour dues and water levies were approximately ISK 30m.

As the price of electricity paid to Landsvirkjun is confidential, it is not possible to provide an exact figure on how much of the Company's foreign currency income remains in Iceland. For a number of years this proportion has been approximately 40%, or well over ISK 1.5bn in each and every month.



## *Economic benefits of investment projects*



Plans to embark on large investment projects in the aluminium plant in Straumsvík for a total of ISK 57bn were finalised in autumn 2010. The project is the largest investment to be made in Iceland since the economic collapse in late 2008.

The project is twofold. One part involves increasing the plant's production capacity by 20% by increasing the current in the present potrooms, together with modernising equipment in the substation and dry adsorption plant. This investment amounts to ISK 41bn. This part of the project involves complicated and extensive changes to current conductors, with the goal of ensuring that they can handle higher currents. Also, a number of systems in the production system must be modernised and upgraded so that they can handle a 20% increase in throughput.

The second part of the project involves a change in the plant's product mix. The production of slabs will be abandoned, in favour of more valuable billets, which are round rods for extrusion. This part of the project involves an investment of ISK 16bn.

The prerequisite for these projects was the Company's new energy supply contract with Landsvirkjun, valid until 2036, which involves the purchase of additional electricity as well as the renegotiation of the purchase of the current amount of power. A contract was negotiated with Landsvirkjun last summer and came into effect in the autumn, when it became clear that all conditions precedent had been met.

It is estimated that a third of the total investment cost will originate in Iceland, or more than ISK 17bn. In total, the projects call for 620 man-years during the project period and will, for the most part, call for skilled workers such as electricians, iron workers and builders as well as engineers, technical engineers and general workers.

Total expenses in Iceland in 2010 as a result of these investments amounted to ISK 3.3bn. The man-years required were 130. By the end of the year, there were 200 people working on the project and this number subsequently grew rapidly. When construction work peaks in 2011, this number will be over 300. The vast majority of the jobs will be carried out by Icelanders. A large part of those involved in the project at year-end were engineers and technical engineers who are responsible for the design, procurement and on-site management.

The projects require approximately 20-30 new permanent positions in the aluminium plant. The main economic benefits of the projects – in addition to the investment and the jobs created during the construction period – involve increasing the competitive ability of this smallest aluminium plant in Iceland and thereby strengthening the foundation of its operations in the long term.

The plan is to begin increasing the current in the potrooms in the spring of 2012. It will subsequently be steadily increased over a period of more than two years, as work on modernising the current conductors and other equipment progresses. Full capacity should, therefore, be achieved by summer 2014. As regards the billet production, it is assumed that the first phase will be achieved in early 2012, which means that half of the production will be in billets. The second phase, i.e. full changeover to billet production, will be achieved by year-end 2014.

**Auditor's report.**

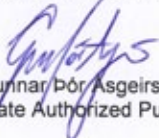
We have audited the numerical data in the report of green accounting for Alcan Iceland Ltd. for the year 2010 in accordance with Regulation No. 851/2002.

The audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the report on environmental accounting. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

It is our opinion that the numerical data in the report of green accounting for Alcan Iceland Ltd. for the year 2010 are consistent with information in its financial accounting.

Hafnarfjörður, 29 April 2011

PricewaterhouseCoopers ehf.



Gunnar Þór Asgeirsson  
State Authorized Public Accountant

Readers are encouraged to send us suggestions or comments about this report using the e-mail address: [samskiptasvid@riotinto.com](mailto:samskiptasvid@riotinto.com).

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