# Performance Agreement

PERFORMANCE AGREEMENT CONCERNING AIR POLLUTANTS FROM THE ALUMINIUM AND ALUMINA SECTOR
(herein "Agreement")

BETWEEN

HER MAJESTY THE QUEEN IN RIGHT OF CANADA, AS REPRESENTED BY THE MINISTER OF THE ENVIRONMENT
(herein "Environment Canada")

AND

THE ALUMINIUM ASSOCIATION OF CANADA
(herein "AAC")

AND

RIO TINTO ALCAN INC.
(herein "RTA")

ALCOA LTÉE FOR THE BENEFIT OF ITS CANADIAN DIVISIONS AND RELATED ENTITIES
(herein "Alcoa")

ALUMINERIE ALOUETTE INC.
(herein "Alouette")

(Each of RTA, Alcoa, Alouette herein individually referred to as “Company” and collectively referred to as "Companies")

Each of the above-mentioned are individually referred to as "Party" and collectively as "Parties."

***Preamble***

WHEREAS the use of primary aluminium production technologies, including the electrolysis process, anode baking, anode paste production, petroleum coke calcining and the production of alumina from bauxite, is a source of atmospheric emissions of polycyclic aromatic hydrocarbons (PAHs), sulphur dioxide ($SO_2$), total particulate matter (TPM) and respirable particles with a diameter of 2.5 microns or less ($PM_{2.5}$);

WHEREAS in October 2012, federal, provincial and territorial environment ministers took action to better protect human health and the environment by endorsing and implementing the new Air Quality Management System (AQMS). The AQMS includes Canadian Ambient Air Quality Standards for fine particulate matter and ground-level ozone, Base Level Industrial Emissions Requirements (BLIERs) and local Air Zone Management by the provincial/territorial jurisdictions. For the Aluminium and Alumina Sector, BLIERs were developed for PAHs, $SO_2$, TPM and $PM_{2.5}$;

WHEREAS the Minister of the Environment recognizes voluntary action of industry as an efficient means to achieve environmental objectives;

AND WHEREAS the Parties share a common interest in continuing efforts to reduce atmospheric emissions of PAHs, $SO_2$, TPM and $PM_{2.5}$;

Therefore, the Parties hereby agree as follows:

## 1.0 DEFINITIONS

“Existing facility” means Companies' existing Canadian facilities carrying out the activities listed below:

| Company | Facility | Activity |
|---|---|---|
| RTA | Grande-Baie | • Electrolysis<br>• Anode baking<br>• Anode paste production |
| | Laterrière | • Electrolysis |
| | Arvida | • Electrolysis<br>• Anode baking<br>• Anode paste production<br>• Petroleum coke calcining |
| | Aluminerie Arvida – Centre Technologique AP60 | • Electrolysis |
| | Alma | • Electrolysis<br>• Anode baking<br>• Anode paste production |
| | Kitimat | • Söderberg electrolysis |

| | | |
|---|---|---|
| | | • Anode paste production<br>• Petroleum coke calcining |
| | Vaudreuil | • Production of alumina from bauxite |
| | Strathcona | • Petroleum coke calcining |
| Alcoa | Baie-Comeau | • Electrolysis |
| | Deschambault | • Electrolysis<br>• Anode baking<br>• Anode paste production |
| | Bécancour | • Electrolysis<br>• Anode baking<br>• Anode paste production |
| Alouette | Sept-Îles | • Electrolysis<br>• Anode baking<br>• Anode paste production |

"New electrolysis" means any potline addition coming into operation after January 1, 2015, that results in an increase of aluminium production capacity or any replacement of an existing potline in an existing facility that uses the electrolysis process.

"New facility" means a facility coming into operation after the date of signature that carries out anode baking, anode paste manufacturing, alumina production or coke calcining operations.

" “Normal operating conditions" means conditions that are representative of regular or typical operating conditions related to the aluminium and alumina sector and does not include, for example, start-ups or restarts.

"PAH" means the sum of emissions of any of the following compounds or any combination thereof:

| | |
|---|---|
| 1. Fluorene | 9. Benzo[*e*]Pyrene |
| 2. Phenanthrene | 10. Benzo[*b*]Fluoranthene |
| 3. Anthracene | 11. Benzo[*j*]Fluoranthene |
| 4. Pyrene | 12. Benzo[*k*]Fluoranthene |
| 5. Fluoranthene | 13. Benzo[*g,h,i*]Perylene |
| 6. Chrysene | 14. Indeno[*1,2,3-cd*]Pyrene |
| 7. Benzo[*a*]Anthracene | 15. Dibenz[*a,h*]Anthracene |
| 8. Benzo[*a*]Pyrene | |

## 2.0 PURPOSE

The purpose of this Agreement is for each existing facility, new electrolysis and new facility of the aluminium and alumina sector to achieve and maintain the BLIERs for PAHs, $SO_2$, TPM and $PM_{2.5}$ as described in Annex 1.

## 3.0 LEGAL STATUS

This Agreement does not and is not intended to create legally binding obligations among the Parties, nor does it constitute any admission of liability by any of the Parties. Each company is responsible only for its own commitments and obligations under this Agreement and shall not be liable in any manner whatsoever in the event of a default by any of the other companies to achieve one or any commitment or obligation taken under this Agreement.

This Agreement and all annexes listed throughout constitute the entire agreement between the Parties. There are no undertakings, representations, promises or warranties, express or implied, other than those contained in the Agreement and its annexes.

By signing this Agreement, each Party agrees to fully conform to its commitment for as long as it is a Party to the Agreement.

Nothing in this Agreement precludes a Party from implementing any other environmental or human health initiatives as it sees fit.

Adherence to this Agreement does not in any way exempt any Company or the AAC from complying with any and all applicable laws and regulations.

## 4.0 DURATION

The Agreement shall be effective as of the date of the Minister’s signature affixed to this Agreement, to the extent that it has been signed by all the other parties and shall expire on December 31, 2025, unless terminated earlier in accordance with section 5.0.

## 5.0 TERMINATION

The Parties may on mutual consent in writing terminate this Agreement at any time. However, any Party may terminate this Agreement at any time, without cause and for its sole convenience, by giving at least one year’s written notice of its intention to terminate to the other Parties.

## 6.0 AMENDMENTS

This Agreement may be amended at any time by mutual consent of the Parties. In order to be valid, any amendment to this Agreement shall be in writing and signed by each of the Parties.

## 7.0 ASSIGNMENT AND SUCCESSORS

This Agreement will apply to the successors or assigns of the Parties.

## 8.0 UNDERSTANDINGS

The risk management objectives described in Annex 1 apply to normal operating conditions.

In the event of suspension or the definitive closure of operations at a facility of a Company, the Company will be relieved of its responsibilities under this Agreement for the affected facility.

This Agreement is not intended to prevent the Government of Canada from recommending or taking any legislative, regulatory or other measures necessary to prevent or reduce impacts of air emissions of PAHs, $SO_2$, TPM and $PM_{2.5}$ on the environment or human health or any measure that it deems appropriate, and nothing in this Agreement may be construed as having such an effect.

Any future person or entity that produces primary aluminium, alumina from bauxite, anode paste, baked anodes or calcined coke for use in aluminium smelting will be encouraged to sign an agreement similar to this Agreement, in order to minimize the risk of environmental impacts of air emissions.

## 9.0 RISK MANAGEMENT OBJECTIVES

Each Company agrees to achieve and maintain the quantitative and qualitative BLIERs outlined in Annex 1 for existing and new facilities.

The Parties agree to participate in the development of a quantitative $PM_{2.5}$ target based on the $PM_{2.5}$ sampling and monitoring program described in Annex 1.

For the purposes of continuous improvement, the Parties agree to establish a working relationship that will facilitate the exchange of information and knowledge regarding atmospheric emissions, including emission sources, emissions reduction and methods for sampling and analysis.

## 10.0 REPORTING

### 10.1 Report Content and Format

Each Company agrees to produce individual annual reports for each existing and new facility, as outlined in Annex 2, in the format provided by Environment Canada. The reporting template may be updated from time to time. The

Companies and AAC will be given sufficient time to review and provide comments on the updated version.

Each Company will provide Environment Canada with an electronic version of this report by June 30 for each year that the Agreement is in effect, starting with the year after signature. The electronic annual reports will contain data pertaining to the previous calendar year and are to be sent to:

Subject title: Aluminium PA
Regulatory Innovation and Management Systems
351 St. Joseph Boulevard, 20th Floor
Gatineau QC  K1A 0H3
Canada
Phone: 1-844-580-3637

Or electronically to ec.epa-epe.ec@canada.ca

Each Company will ensure that data used in the description of their respective results achieved under the Agreement are complete, accurate, measurable and verifiable.

### 10.2 Retention of Records

Each Company and the AAC will retain all records related to this Agreement for the duration of its participation in this Agreement, plus five years, and make them available to Environment Canada upon request.

### 10.3 Public Report

Environment Canada will publish on its website (www.ec.gc.ca/epa-epe) progress reports based on reports received under this Agreement. Progress reports will be reviewed by all Parties before publication and will be considered confidential until final approval by all Parties.

## 11.0 VERIFICATION

Environment Canada will review annual reports and will assess progress made under this Agreement. Environment Canada may request additional information if necessary. Environment Canada may perform additional verification by means of personnel interviews, site visits and verification of records.

## 12.0 ROLES AND RESPONSIBILITIES

Each Company agrees to:

- Meet the applicable risk management objectives set out in Annex 1 of this Agreement;
- Participate in the $PM_{2.5}$ Working Group and $SO_2$ Working Group;

- Participate in the development of a quantitative $PM_{2.5}$ target;
- Report to Environment Canada as per section 10.0 of this Agreement;
- Collaborate with Environment Canada during the verification process and any resulting follow-up actions; and
- Maintain performance once the risk management objectives have been achieved.

The AAC agrees to:

- Chair, organize and follow up on action items of $PM_{2.5}$ Working Group and $SO_2$ Working Group meetings;
- Provide Environment Canada with meeting notes from the $PM_{2.5}$ Working Group and $SO_2$ Working Group meetings; and
- Share all information pertaining to the Agreement with all its members.

Environment Canada agrees to:

- Review sampling results and reports submitted by the Companies and AAC;
- Monitor progress under this Agreement, oversee its administration and evaluate its effectiveness with respect to the objectives and requirements;
- Participate in the $PM_{2.5}$ Working Group and $SO_2$ Working Group; and
- Publish reports on Environment Canada's website summarizing progress made under this Agreement.

## 13.0 AVAILABILITY OF AGREEMENT AND INFORMATION

A copy of this Agreement and Environment Canada's progress reports will be made available on Environment Canada's website.

### Confidential Information

Notwithstanding the first paragraph of section 3 of this Agreement, the Parties agree that section 13 of this Agreement is mandatory and binding between the parties and beyond the expiration or termination of this Agreement.

Environment Canada agrees to keep confidential and not disclose any confidential information obtained from the Parties under this Agreement that has been identified as being confidential if a written request for confidentiality is submitted at the same time as the information is provided. The request must specify the information that is considered to be confidential and the reason why it should be treated as such.

Nothing in this Agreement shall be interpreted so as to preclude Environment Canada from disclosing information that Environment Canada may be required or

ordered to disclose pursuant to any applicable federal laws or court orders, including the *Access to information Act*, R.S. 1985.

## 14.0 SIGNATURES

The Parties acknowledge that they have read and accepted all of the provisions of the Agreement.

**SIGNED FOR HER MAJESTY THE QUEEN IN RIGHT OF CANADA, AS REPRESENTED BY THE MINISTER OF THE ENVIRONMENT**

By:

Title:

Signature:

Signed this day of , 2016

**SIGNED FOR THE ALUMINIUM ASSOCIATION OF CANADA**

By:

Title:

I represent and warrant that I am duly authorized to bind THE ALUMINIUM ASSOCIATION OF CANADA.

Signature:

Signed this day of , 2016

**SIGNED FOR RIO TINTO ALCAN INC.**

By:

Title:

I represent and warrant that I am duly authorized to bind RIO TINTO ALCAN.

Signature:

Signed this day of , 2016

**SIGNED FOR ALCOA LTÉE FOR THE BENEFIT OF ITS CANADIAN DIVISIONS AND RELATED ENTITIES**

By:

Title:

I represent and warrant that I am duly authorized to bind ALCOA LTÉE FOR THE BENEFIT OF ITS CANADIAN DIVISIONS AND RELATED ENTITIES.

Signature:

Signed this day of , 2016

**SIGNED FOR ALUMINERIE DE BÉCANCOUR INC.**

By:

Title:

I represent and warrant that I am duly authorized to bind ALUMINERIE DE BÉCANCOUR INC.

Signature:

Signed this day of , 2016

**SIGNED FOR ALUMINERIE ALOUETTE INC.**

By:

Title:

I represent and warrant that I am duly authorized to bind ALUMINERIE ALOUETTE INC.

Signature:

Signed this day of , 2016

## ANNEX 1: RISK MANAGEMENT OBJECTIVES

| Activity | BLIER* | Effective Date | Minimum frequency of sampling** |
|---|---|---|---|
| 1. Potroom (electrolysis) Existing | PAHs: 200 g/tonne of aluminium | date of signature | For Söderberg electrolysis process<br>Scrubbers: At least one series of potlines sampled annually.<br>Roof vents of each series of potlines: One week every quarter, yearly average<br><br>For CWPB: No requirement |
| 2. Potroom (electrolysis) Existing | TPM: 2.0 kg/tonne of aluminium | date of signature (6) | Scrubbers: At least one series of potlines sampled annually.<br>Roof vents of each series of potlines: Every four weeks, yearly average |
| 3. Potroom (electrolysis) New | PAHs:<br>CWPB technology<br>OR<br>3.0 g/tonne of aluminium | date of signature | CWPB: No requirement<br><br>Other technologies (3.0 g/tonne of Al): Same as for existing potroom (BLIERs #1) |
| 4. Potroom (electrolysis) New | TPM: 1.3 kg/tonne of aluminium | date of signature | Same as for existing potroom (BLIERs #2) |
| 5. Anode baking Existing and new | PAHs: 50 g/tonne of baked anodes (Action plan(1) required for levels exceeding 20 g/t) | date of signature | Annual sampling |
| 6. Anode baking Existing and new | TPM: 0.3 kg/tonne of baked anodes | date of signature | Annual sampling |
| 7. Anode paste production Existing and new | PAHs: 30 g/tonne of anode paste | date of signature | Sampling once every two years |
| 8. Alumina production Existing and new | TPM: QCAR | date of signature | Sampling once every three years for heavy fuel oil boilers, once every three years for calcination of alumina, etc. |
| 9. Alumina production Existing and new | $SO_2$: Maximum sulfur concentration in fuel: 1% | date of signature | "(…) facilities will have to use heavy fuel oil with a maximum sulphur concentration of 1% mass basis (…)" (QCAR) |
| 10. Coke calcination Existing and new | TPM: 1.5 kg/tonne of green coke | date of signature | Annual sampling |
| 11. Qualitative/Electrolysis, anode baking, coke calcination Existing and new | $SO_2$: Action plan(2) developed by expert workgroup and data reporting(3) | date of signature | Described in each qualitative BLIERs |
| 12. Qualitative/Electrolysis, anode baking, alumina production, coke calcination Existing and new | $PM_{2.5}$: Source sampling(4) and implementation of a code of practices(5) | date of signature | Described in each qualitative BLIERs |

QCAR: Quebec's *Clean Air Regulation*
CWPB: Centre Work Prebaked

*The BLIER targets have been developed with the sampling methods prescribed in QCAR in effect at the date of signature of this Agreement. In the event of a change in method, the BLIER targets should be reviewed by the Parties.

**Frequency and sampling methodologies for the BLIERs should harmonize with QCAR. If one facility is subject to a different frequency or sampling methodology, the Company should provide Environment Canada with a detailed sampling plan.

(1)Action Plan for the reduction of PAH emissions from anode baking:

This action plan will describe corrective and preventive measures to be undertaken in order to reduce PAH emissions below 20 g/tonne of baked anodes. Summary of the proposed action plan:

a. Description of the facts surrounding the exceedence
    i. A notice will be sent to Environment Canada explaining these facts, at the latest 30 days after the exceedence.
b. Identification of the required corrective actions, if needed
c. Identification of the required mitigation measures to avoid recurrence of this type of exceedence (preventative measures)
    i. A document describing steps b) and c) will be forwarded to, at the latest 60 days after sending the Notice (step a).
    ii. This document will identify the timeline for each measure as well as the people responsible for its implementation.
d. Implementation of the action plan
e. Effectiveness of the implemented measures will be verified at the next sampling campaign

(2)$SO_2$ Action Plan:

Action plan to target pollution prevention initiatives applicable to the industry upstream of anode baking and the electrolysis processes.

(3)Data reporting:

1. Coke calcination: Harmonization with Quebec requirements (e.g., sulphur concentration of green petroleum coke and calcined petroleum coke, total quantity of coke used, and total $SO_2$ emissions released in the process; annual data reported).

2. Electrolysis and anode baking: Harmonization with section 142 of Quebec's *Air Quality Regulation*, which requires the operator of an aluminium smelter to maintain a record of the quantities and sulphur content of coke and pitch used in the process.
    (1) a detailed report for each month of the year ended, in which the emissions into the atmosphere are reported in the form of sulphur dioxide; the report must indicate the quantities of sulphur contained in the input for aluminium production processes as well as manufacturing and baking of anodes, including the quantities of sulphur contained in the fuel; and
    (2) a report indicating, for each month of the year ended, the quantities of coke and pitch used, from each supplier, and their respective sulphur content.

(4)$PM_{2.5}$ source sampling:

For RTA:

- Coke calcination (furnace gas): Arvida (EA1)
- Gas Treatment Centre – Electrolysis: Grande-Baie (106EA, 111EA or 116EA) or Laterrière (79EA, 82EA, 76EA ou 85EA) and Alma (367EA(4201) (completed), 370EA(4202) or 373EA(4203) (completed))

- 1 roof vent (section): Laterrière or Grande-Baie and Alma (completed)
- Anode production (mixer/compactor): Grande-Baie (22EA or 23EA)
- Fume Treatment Centre – Anode Baking: Arvida (EA30)
- Calcinator and Boiler (if heavy oil #6): Vaudreuil

For Alcoa:

- 1 roof vent, prebaked section only: Baie-Comeau or Bécancour
- Anode production (mixer/compactor): Bécancour (#36)
- 1 roof vent (section): Deschambault (completed)
- Fume Treatment Centre – Anode Baking: Deschambault (completed)
- Gas Treatment Centre – Electrolysis: Deschambault (completed)

For Alouette:

- Gas Treatment Centre – Electrolysis: Sept-Îles (CE1, CE2, CE3 or CE4)
- 1 roof vent (section): Sept-Îles
- Fume Treatment Centre – Anode Baking: Sept-Îles (CF1 ou CF2)

(5)Code of practice: Code of practice to reduce emissions of fine particulate matter ($PM_{2.5}$) from the primary aluminium sector

Conditions for implementing the Code:

1. A diagnosis will be conducted by the Company at each existing and new facility in order to identify which of the recommendations described in the Code have been implemented.
2. An action plan identifying recommendations that are appropriate and practical based on circumstances specific to each facility will be prepared by Companies and provided to Environment Canada for information at the latest one year after the date of signature of this Agreement.
3. The action plan will be implemented by Companies, and a follow-up will be carried out and provided to Environment Canada in the annual report.

(6)For RTA's Arvida facility, the TPM BLIER will apply starting at the latest implementation date prescribed in section 135 of QCAR.

## ANNEX 2: REPORTS

The annual reports will include information and results on the following BLIERs:

- Quantitative Base Level Industrial Emissions Requirements
- Qualitative and Quantitative $SO_2$ Base Level Industrial Emissions Requirements
- Qualitative $PM_{2.5}$ Base Level Industrial Emissions Requirements