



Annual Permit Report

for

Swansea Power Plant
Westfield Industrial Park
Titanium Road
Waunarlwydd
SA5 4SF

Background

This site operates 27 Jenbacher 420 spark ignition gas engines for generating electricity.

The process is authorised and regulated by Natural Resources Wales (NRW) by way of an environmental permit (EPR/AB3393CP) under the Environmental Permitting Regulations 2016.

Report Purpose

This report complies with permit conditions to provide annual performance data on the following parameters:

1. Nitrogen Dioxide
2. Carbon Monoxide
3. Oxygen
4. Water Vapour
5. Water Usage
6. Energy Usage
7. Engine Operating Hours

Equipment

As emissions to air, parameters 1 to 3 above, have been measured using a RASI 800 MCERTS Emissions & Combustion Analyser. This analyser meets MCERTS standards for emissions testing requirements at this site. This instrument uses the electrochemical method, which is noted as the allowed Alternative Method under the various emissions standards required by the Permit.

Calibration was carried out on 26/10/2020 and is next due on 26/10/2021.

- The MCERTS Product Conformity Certificate may be found in Appendix A
- The Calibration Certificate may be found in Appendix B

Water Vapour Emissions

Technically, it is difficult and expensive to measure this parameter with any accuracy on these types of engines. The only water vapour emitted is as a result of the combustion of natural gas, and the exhaust concentration is calculated to be in the region of 11% by volume, or approximately double the concentration of CO₂.

During measurement, the RASI 800 condenses out moisture and provides dry sample readings, without quantifying the amount of water present.

Water Usage

There is mains water servicing the site.

This water is not used as part of the combustion process, and its primary use is for the welfare facilities on site.

Meter readings for 2020 are not available, so the figure reported is based upon previous values considering there have been no operational or personnel changes since 2017. We therefore expect water usage to be of similar efficiency: approximately 14 m³.

This figure has been reported on the relevant forms in Appendices A and C.

Energy Usage

- Electricity usage for 2020 was 1312 MWhe
- Gas usage for 2020 was 148,116 MWh

These figures have been reported on the relevant forms in Appendices E and F.

Engine Operating Hours

Total operating hours = 1208

Total number of runs = 814

Total number of runs over 2 hours = 225

Longest run = 13.9 hours

These figures have been reported on the relevant form in Appendix C.

Conclusion

All reported values are within specified limits.

Written by Paul Aujla

A handwritten signature in black ink, appearing to be "Paul Aujla".

29/01/2021



PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

RASI 800 portable emission monitoring system

Manufactured by:

Eurotron Instruments (UK) Ltd

Unit 8 Austin Way
Royal Oak Industrial Estate
Daventry
Northants
NN11 8QY
UK

has been assessed by Sira Certification Service
And for the conditions stated on this certificate complies with:

**MCERTS Performance Standards for Handheld
Emission Monitoring Systems, Version 4 dated
September 2018**

Certification Ranges :

CO	0 to 500 ppm	0 to 1000 ppm
CO ₂	0 to 12 %vol.	0 to 20 %vol.
NO	0 to 300 ppm	0 to 2000 ppm
NO ₂	0 to 200 ppm	
SO ₂	0 to 500 ppm	

O₂ 0 to 21 %vol.

Project No. : 16A29050
 Certificate No : Sira MC130233/02
 Initial Certification : 04 October 2013
 This Certificate issued : 03 October 2018
 Renewal Date : 03 October 2023

Emily Alexander
 Environmental Project Engineer

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service



Unit 6, Hawarden Industrial Park
 Hawarden, Deeside, CH5 3US
 Tel: +44 (0)1244 670 900

*The MCERTS certificate consists of this document in its entirety.
 For conditions of use, please consider all the information within.*

*This certificate may only be reproduced in its entirety and without change
 To authenticate the validity of this certificate please visit www.csagroupuk.org/mcerts*

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Form 1335
 Issue 4

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Approved Site Application

Any potential user should ensure, in consultation with the manufacturer, that the monitoring system is suitable for the intended application. For general guidance on monitoring techniques refer to the Environment Agency Monitoring Technical Guidance Notes available at www.mcerts.net

The measuring system shall only be employed at plants in which the waste gas humidity does not persistently exceed 30 %vol.

Basis of Certification

This certification is based on the following Test Report(s) and on Sira's assessment and ongoing surveillance of the product and the manufacturing process:

TUV Rheinland Report Number 936/21220650/A dated 14 August 2013

Product Certified

The RASI 800 portable emission monitoring system consists of the following parts:

- Base unit with condensate separator
- Sensor unit
- Data printer
- Remote control unit (RCU)
- Gas sampling probe with exchangeable probe pipe and sampling line

This certificate applies to all instruments fitted with software version 1.08.01 (serial numbers 012055 (Base Unit) & 012043 (Remote Control Unit) onwards).

Certified Performance

The instrument was evaluated for use under the following conditions:

Ambient Temperature Range: +5°C to +40°C

Results are expressed as error % certification ranges for CO 0 to 500ppm, CO₂ 0 to 12%vol., NO 0 to 300ppm, NO₂ 0 to 200ppm, SO₂ 0 to 500ppm & O₂ 0 to 21%vol., unless otherwise stated.

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Response time						
CO (0 to 500 ppm)					67s	<200s
CO (0 to 1000 ppm)					44s	<200s
CO ₂ (0 to 12 %vol.)					81s	<200s
CO ₂ (0 to 20 %vol.)					71s	<400s
NO (0 to 300 ppm)					17s	<400s
NO (0 to 2000 ppm)					17s	<200s
NO ₂ (0 to 200 ppm)					59s	<200s
SO ₂ (0 to 500 ppm)					37s	<200s
O ₂ (0 to 21 %vol.)					11s	<200s

Repeatability standard deviation at zero point						
CO	0.0					<2.0%
CO ₂	0.02					<2.0%
NO	0.0					<2.0%
NO ₂	0.0					<2.0%
SO ₂	0.0					<2.0%
O ₂	0.0					<0.4%
Repeatability standard deviation at zero point						
CO	0.0					<2.0%
CO ₂	0.02					<2.0%
NO	0.0					<2.0%
NO ₂	0.0					<2.0%
SO ₂	0.0					<2.0%
O ₂	0.0					<0.4%

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Lack-of-fit						
CO (0 to 500 ppm)		0.80				<2.0%
CO (0 to 1000 ppm)			-1.1			<2.0%
CO ₂ (0 to 12 %vol.)		0.83				<2.0%
CO ₂ (0 to 20 %vol.)			-1.0			<2.0%
NO (0 to 300 ppm)			-1.0			<2.0%
NO (0 to 2000 ppm)		-0.50				<2.0%
NO ₂ (0 to 200 ppm)				-2.0		<2.0%
SO ₂ (0 to 500 ppm)		-0.66				<2.0%
O ₂ (0 to 21 %vol.)	-0.11					<0.4%
Influence of ambient temperature - zero point						
CO	0.0					<5.0%
CO ₂	0.0					<5.0%
NO	0.0					<5.0%
NO ₂	0.0					<5.0%
SO ₂	0.0					<5.0%

O ₂	0.06					<0.8%
Influence of ambient temperature - span point						
CO				-2.3		<5.0%
CO ₂		0.80				<5.0%
NO			-1.4			<5.0%
NO ₂			-1.8			<5.0%
SO ₂			-1.5			<5.0%
O ₂	0.10					<0.8%

Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Cross-sensitivity at zero with interferents: O ₂ , H ₂ O, CO, CO ₂ , CH ₄ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl						
CO	0.0					<5.0%
CO ₂	0.58					<5.0%
NO			1.3			<5.0%
NO ₂			-1.0			<5.0%
SO ₂	0.0					<5.0%
O ₂	0.0					<0.8%
Cross-sensitivity at reference with interferents: O ₂ , H ₂ O, CO, CO ₂ , CH ₄ , N ₂ O, NO, NO ₂ , NH ₃ , SO ₂ , HCl					Note 1	
CO			1.4			<5.0%
CO ₂				-3.3		<5.0%
NO				3.8		<5.0%
NO ₂				-4.7		<5.0%
SO ₂				-4.2	Note 2	<5.0%
O ₂	0.1					<0.8%
Zero drift						
CO	0.0					<3.0%
CO ₂	0.0					<3.0%
NO	0.0					<3.0%
NO ₂	0.0					<3.0%
SO ₂	0.0					<3.0%

O ₂	0.0					<0.3%
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Test	Results expressed as % of the certification range				Other results	MCERTS specification
	<0.5	<1	<2	<5		
Span drift						
CO				-2.3		<3.0%
CO ₂			1.0			<3.0%
NO	0.43					<3.0%
NO ₂				2.8		<3.0%
SO ₂			1.0			<3.0%
O ₂	0.1					<0.3%

Note 1: Depending on the degree of frequency and the level of the concentration of the measured components the measuring system NOVA plus must be calibrated frequently by using test gases for the components NO, NO₂, CO, CO₂ and SO₂. The O₂ channel has to be calibrated with ambient air. At the same time the cross sensitivities among the sensors have to be checked and if necessary readjusted.

Note 2: The cross sensitivity test at span for SO₂ was conducted with 10 %^{vol.} H₂O rather than 30 %^{vol.} prescribed by EN 15267-3. As a result, for the measurement of SO₂ the humidity in the waste gas shall not exceed 10 %^{vol.}

Description

The RASI 800 is a portable emissions and combustion analyser capable of measuring O₂, CO, NO, NO₂, SO₂, H₂S by using electrochemical cells and CO₂, HC and CO by using NDIR infrared technology.

The MCERTS version measures O₂, CO, NO, NO₂, SO₂ and CO₂ and it is certified as per range stated in the first page.

The RASI 800 MCERTS has a sophisticated sample conditioning system which includes a sampling line with heated head, an electronic Peltier gas cooler, a peristaltic pump for moisture removal and line filters.

In addition, to support long term measurement, a "fresh air inlet/set to auto zero" user programmable function is supplied as standard.

The unit operates on Li-ION rechargeable batteries or can be powered using mains power. The base unit is also equipped with a built-in printer

The wireless hand held control unit (RCU) remotely controls and operates all the functions of the analyser and displays the measured value. Data can be saved

on an SD card and transferred to a PC directly or via USB port. The communication between the RCU and the analyzer base is established via Bluetooth and it is ensured over long distances. The RCU is powered by Li-ION rechargeable batteries which are charged via induction from the main unit.

The RCU advanced menu offers many features and provides the user with various information and automatic calculations, such as O2 referencing and emissions conversions.

General Notes

1. This certificate is based upon the equipment tested. The Manufacturer is responsible for ensuring that on-going production complies with the standard(s) and performance criteria defined in this Certificate. The Manufacturer is required to maintain an approved quality management system controlling the manufacture of the certified product. Both the product and the quality management system shall be subject to regular surveillance according to 'Regulations Applicable to the Holders of Sira Certificates'. The design of the product certified is defined in the Sira Design Schedule for certificate No. Sira MC130232/00
2. If certified product is found not to comply, Sira Certification Service should be notified immediately at the address shown on this certificate.
3. The Certification Marks that can be applied to the product or used in publicity material are defined in 'Regulations Applicable to the Holders of Sira Certificates'.
4. This document remains the property of Sira and shall be returned when requested by the company.

Appendix B



Eurotron Instruments (UK) Ltd
Unit 18 Austin Way
Daventry, Northants. NN11 8QY
T: 01327 871044
F: 01327 301255

CALIBRATION CERTIFICATE N. EE9816

Job Reference 31380

Customer Viridis 178 Limited
viridis power
TS2 Pinewood business park
coleshill road
birmingham
B37 7HG

Instrument Type: MRU
Instrument Model: Rasi 800
Base S/N: 016487
RCU S/N: 016509
Calibration date: 26 OCT 2020
Due Date: 26 OCT 2021

Traceability: All measuring equipment used for calibration purposes is traceable to National or Internationally recognised standards.

Test Method: Under controlled conditions and procedures, known physical, electrical and gas mixture were applied to the instruments under test and the results are reported in the table below

Due Date: This is a recommendation only and does not imply any guaranteed performance of the instrument over this period.

Standards:	S/N/ID N.	Certificate:N
O2 certified gas mixture	373466	40007939320
CO(H2) certified gas mixture	373466	40007939320
NO certified gas mixture	345075	040007611453
NO2 certified gas mixture	343078	40007773039
Pressure Calibrator	2803358	78426
Temperature Calibrator	4006904	69784

CALIBRATION RESULTS

Parameter	Unit	Applied	As received	Error	Pass/Fail	As left	Error	Pass/Fail
O2	% Vol	20.90	20.9	0.0	Pass	20.90	0.00	Pass
O2	% Vol	10.0	10.1	0.1	Pass	10.00	0.02	Pass
CO	ppm	149.6	144.0	-5.6	Pass	156	6.40	Pass
NO	ppm	84.3	80.0	-4.3	Fail	85	0.70	Pass
NO2	ppm	48.5	n/a	N/A	N/A	49	0.50	Pass
Pressure	mbar	0.00	n/a	N/A	N/A	0.00	0.00	Pass
	mbar	49.97	n/a	N/A	N/A	50.29	0.32	Pass
	mbar	75.13	n/a	N/A	N/A	75.28	0.15	Pass
	mbar	89.95	n/a	N/A	N/A	90.19	0.24	Pass
	mbar	99.95	n/a	N/A	N/A	99.96	0.01	Pass
Temperature (Flue)	°C	0.00	n/a	N/A	N/A	0.1	0.10	Pass
	°C	200.00	n/a	N/A	N/A	200.3	0.30	Pass
	°C	400.00	n/a	N/A	N/A	400.3	0.30	Pass
	°C	600.00	n/a	N/A	N/A	600.1	0.10	Pass
	°C	1,190.00	n/a	N/A	N/A	1190.7	0.70	Pass
Temperature (Air)	°C	0.00	n/a	N/A	N/A	0.3	0.30	Pass
	°C	50.00	n/a	N/A	N/A	50.4	0.40	Pass

Date: 26/10/20
Printed Name: Andy Cox / Anthony Kinninmonth

John Dorgan

Signature: 

Appendix C

Permit Number : EPR/AB3393CP
Facility : Alcoa Combustion Plant

Operator : Conrad (Alcoa) Limited
Form Number : Air 01 29/01/21

Reporting of periodically monitored emissions to air for the period from 01/01/2020 to 31/12/2020

Nitrogen Oxide

mission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method	Result Date and Time ^[2]	Uncertainty ^[3]
A1	Oxides of Nitrogen(NO and NO ₂ expressed as NO ₂)	95 mg/m ³	Periodic	91	MCERTS RASI 800	08.12.2020 09:39	±1
A2		95 mg/m ³	Periodic	90	MCERTS RASI 800	08.12.2020 09:52	±1
A3		95 mg/m ³	Periodic	86	MCERTS RASI 800	08.12.2020 10:04	±1
A4		95 mg/m ³	Periodic	83	MCERTS RASI 800	08.12.2020 10:14	±1
A5		95 mg/m ³	Periodic	88	MCERTS RASI 800	08.12.2020 10:21	±1
A6		95 mg/m ³	Periodic	89	MCERTS RASI 800	08.12.2020 10:25	±1
A7		95 mg/m ³	Periodic	85	MCERTS RASI 800	08.12.2020 10:31	±1
A8		95 mg/m ³	Periodic	90	MCERTS RASI 800	08.12.2020 10:49	±1
A9		95 mg/m ³	Periodic	89	MCERTS RASI 800	08.12.2020 11:15	±1
A10		95 mg/m ³	Periodic	83	MCERTS RASI 800	08.12.2020 11:23	±1
A11		95 mg/m ³	Periodic	89	MCERTS RASI 800	08.12.2020 11:29	±1
A12		95 mg/m ³	Periodic	88	MCERTS RASI 800	08.12.2020 11:36	±1
A13		95 mg/m ³	Periodic	90	MCERTS RASI 800	08.12.2020 11:40	±1
A14		95 mg/m ³	Periodic	90	MCERTS RASI 800	11.12.2020 11:44	±1
A15		95 mg/m ³	Periodic	90	MCERTS RASI 800	10.12.2020 09:34	±1
A16		95 mg/m ³	Periodic	88	MCERTS RASI 800	10.12.2020 09:57	±1
A17		95 mg/m ³	Periodic	89	MCERTS RASI 800	10.12.2020 10:11	±1
A18		95 mg/m ³	Periodic	89	MCERTS RASI 800	10.12.2020 11:21	±1
A19		95 mg/m ³	Periodic	88	MCERTS RASI 800	10.12.2020 11:31	±1
A20		95 mg/m ³	Periodic	90	MCERTS RASI 800	10.12.2020 11:38	±1
A21		95 mg/m ³	Periodic	Out of service	MCERTS RASI 800	Out of service	±1
A22		95 mg/m ³	Periodic	89	MCERTS RASI 800	10.12.2020 11:43	±1
A23		95 mg/m ³	Periodic	89	MCERTS RASI 800	10.12.2020 11:56	±1
A24		95 mg/m ³	Periodic	90	MCERTS RASI 800	10.12.2020 12:09	±1
A25		95 mg/m ³	Periodic	90	MCERTS RASI 800	10.12.2020 12:23	±1
A26		95 mg/m ³	Periodic	87	MCERTS RASI 800	10.12.2020 12:31	±1
A27		95 mg/m ³	Periodic	89	MCERTS RASI 800	10.12.2020 12:42	±1

Signed  Date.....29/01/2021.....
(authorised to sign as representative of Operator)

Carbon Monoxide

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method	Result Date and Time ^[2]	Uncertainty ^[3]
A1	Carbon Monoxide	No limit set	Periodic	351	MCERTS RASI 800	08.12.2020 09:39	±1
A2		No limit set	Periodic	331	MCERTS RASI 800	08.12.2020 09:52	±1
A3		No limit set	Periodic	345	MCERTS RASI 800	08.12.2020 10:04	±1
A4		No limit set	Periodic	334	MCERTS RASI 800	08.12.2020 10:14	±1
A5		No limit set	Periodic	337	MCERTS RASI 800	08.12.2020 10:21	±1
A6		No limit set	Periodic	300	MCERTS RASI 800	08.12.2020 10:25	±1
A7		No limit set	Periodic	342	MCERTS RASI 800	08.12.2020 10:31	±1
A8		No limit set	Periodic	371	MCERTS RASI 800	08.12.2020 10:49	±1
A9		No limit set	Periodic	366	MCERTS RASI 800	08.12.2020 11:15	±1
A10		No limit set	Periodic	356	MCERTS RASI 800	08.12.2020 11:23	±1
A11		No limit set	Periodic	353	MCERTS RASI 800	08.12.2020 11:29	±1
A12		No limit set	Periodic	360	MCERTS RASI 800	08.12.2020 11:36	±1
A13		No limit set	Periodic	292	MCERTS RASI 800	08.12.2020 11:40	±1
A14		No limit set	Periodic	367	MCERTS RASI 800	11.12.2020 11:44	±1
A15		No limit set	Periodic	310	MCERTS RASI 800	10.12.2020 09:34	±1
A16		No limit set	Periodic	342	MCERTS RASI 800	10.12.2020 09:57	±1
A17		No limit set	Periodic	339	MCERTS RASI 800	10.12.2020 10:11	±1
A18		No limit set	Periodic	364	MCERTS RASI 800	10.12.2020 11:21	±1
A19		No limit set	Periodic	349	MCERTS RASI 800	10.12.2020 11:31	±1
A20		No limit set	Periodic	337	MCERTS RASI 800	10.12.2020 11:38	±1
A21		No limit set	Periodic	Out of service	MCERTS RASI 800	Out of service	±1
A22		No limit set	Periodic	333	MCERTS RASI 800	10.12.2020 11:43	±1
A23		No limit set	Periodic	344	MCERTS RASI 800	10.12.2020 11:56	±1
A24		No limit set	Periodic	336	MCERTS RASI 800	10.12.2020 12:09	±1
A25		No limit set	Periodic	334	MCERTS RASI 800	10.12.2020 12:23	±1
A26		No limit set	Periodic	342	MCERTS RASI 800	10.12.2020 12:31	±1
A27		No limit set	Periodic	349	MCERTS RASI 800	10.12.2020 12:42	±1



Signed

Date.....29/01/2021.....

(authorised to sign as representative of Operator)

Oxygen

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method	Result Date and Time ^[2]	Uncertainty ^[3]
A1	Oxygen	No limit set	Periodic	10.2	MCERTS RASI 800	08.12.2020 09:39	±1
A2		No limit set	Periodic	9.9	MCERTS RASI 800	08.12.2020 09:52	±1
A3		No limit set	Periodic	9.7	MCERTS RASI 800	08.12.2020 10:04	±1
A4		No limit set	Periodic	9.7	MCERTS RASI 800	08.12.2020 10:14	±1
A5		No limit set	Periodic	9.7	MCERTS RASI 800	08.12.2020 10:21	±1
A6		No limit set	Periodic	10.0	MCERTS RASI 800	08.12.2020 10:25	±1
A7		No limit set	Periodic	10.5	MCERTS RASI 800	08.12.2020 10:31	±1
A8		No limit set	Periodic	10.6	MCERTS RASI 800	08.12.2020 10:49	±1
A9		No limit set	Periodic	10.4	MCERTS RASI 800	08.12.2020 11:15	±1
A10		No limit set	Periodic	10.5	MCERTS RASI 800	08.12.2020 11:23	±1
A11		No limit set	Periodic	10.4	MCERTS RASI 800	08.12.2020 11:29	±1
A12		No limit set	Periodic	10.3	MCERTS RASI 800	08.12.2020 11:36	±1
A13		No limit set	Periodic	10.6	MCERTS RASI 800	08.12.2020 11:40	±1
A14		No limit set	Periodic	9.9	MCERTS RASI 800	11.12.2020 11:44	±1
A15		No limit set	Periodic	9.7	MCERTS RASI 800	10.12.2020 09:34	±1
A16		No limit set	Periodic	9.5	MCERTS RASI 800	10.12.2020 09:57	±1
A17		No limit set	Periodic	9.3	MCERTS RASI 800	10.12.2020 10:11	±1
A18		No limit set	Periodic	10.0	MCERTS RASI 800	10.12.2020 11:21	±1
A19		No limit set	Periodic	9.9	MCERTS RASI 800	10.12.2020 11:31	±1
A20		No limit set	Periodic	9.6	MCERTS RASI 800	10.12.2020 11:38	±1
A21		No limit set	Periodic	Out of service	MCERTS RASI 800	Out of service	±1
A22		No limit set	Periodic	9.5	MCERTS RASI 800	10.12.2020 11:43	±1
A23		No limit set	Periodic	9.5	MCERTS RASI 800	10.12.2020 11:56	±1
A24		No limit set	Periodic	9.2	MCERTS RASI 800	10.12.2020 12:09	±1
A25		No limit set	Periodic	9.3	MCERTS RASI 800	10.12.2020 12:23	±1
A26		No limit set	Periodic	9.4	MCERTS RASI 800	10.12.2020 12:31	±1
A27		No limit set	Periodic	9.3	MCERTS RASI 800	10.12.2020 12:42	±1



Signed

Date.....29/01/2021.....

(authorised to sign as representative of Operator)

Appendix D

Permit Number : EPR/AB3393CP
Facility : Alcoa Power Plant

Operator : Conrad (Alcoa) Limited
Form Number : W 01 29/01/21

Reporting of Water Usage for the period from 01/01/2020 to 31/12/2020

Water Source	Usage (tonnes)
Mains water	14
Other (specify)	
TOTAL WATER USAGE	14

Operator's comments:

This water is not used as part of the combustion process, and its primary use is for the welfare facilities on site.

Signed 
 (authorised to sign as representative of operator)

Date.....29/01/2021.....

Appendix E

Permit Number : EPR/AB3393CP
Facility : Alcoa Power Plant

Operator : Conrad (Alcoa) Limited
Form Number : Energy 01 29/01/21

Reporting of Energy Consumption for the period from 01/01/2020 to 31/12/2020

Energy Usage Energy Source	Quantity	Primary Energy (MWh)	Specific Usage (MWh/unit output)
Electricity *	1,312 MWh	3,149	0.06
Natural Gas	148,116 MWh	148,116	2.86
TOTAL	149,428 MWh	151,265	2.92

* Conversion factor for delivered electricity to primary energy = 2.4

Operator's comments:

Gas consumption is reported as Higher/Gross Heating Value.

The electricity consumed by the plant is to keep plant preheated on standby in between periods of operation, and to operate other essential services such as security and telecoms.

Although energy efficiency is very important, and vital in some respects to the business, any potential for greater efficiency will be low due to the high build quality of the site and the way in which it is operated and maintained.

Signed 
 (Authorised to sign as representative of operator)

Date.....29/01/2021.....

Appendix F

Permit Number : EPR/AB3393CP
Facility : Alcoa Power Plant

Operator : Conrad (Alcoa) Limited
Form Number : Perf 01 29/01/21

Reporting of Performance Parameters for the period from 01/01/2020 to 31/12/2020

Performance Parameters		
Parameter	Units used	Performance parameter
Electrical power generated	51,841 MWhe	
Water usage	14 m ³	0.000270 m ³ /MWhe produced
Energy usage	1312 MWhe and 148,116 MWh	0.025 and 2.857 Total energy used/MWhe produced
Total operating hours	1208	42.9 MWhe produced/run hour
Total number of runs	814	63.7 MWhe produced/run
Duration of longest run	13.9 hours	
Number of runs > 2 hours duration	225	27.6% of total runs > 2 hours duration

Signed 
 (Authorised to sign as representative of operator)

Date.....29/01/2021.....