Validation report form for post-registration changes for CDM project activities

(Version 02.0)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION	
Title and UNFCCC reference number of the project activity	Conversion of SF_6 to the alternative cover gas SO_2 at RIMA magnesium production UNFCCC #: 2486
Process track	☐ Prior approval ☒ Issuance ☐ Renewal of crediting period
Version number of the validation report on PRCs	1
Completion date of the validation report on PRCs	15/06/2018
Type(s) of PRCs	☐ Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines ☐ Corrections ☐ Changes to the start date of the crediting period ☐ Inclusion of a monitoring plan ☐ Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other applied standards or tools ☒ Changes to the project design ☐ Changes specific to afforestation and reforestation project activities
Version number of PDD to which this report applies	Version 4
Project participants	RIMA Industrial S/A Electrabel NV/SA Nordic Environment Finance Corporation.
Host Party	Brazil
Applied methodologies and standardized baselines	CDM Methodology: AM0065 ver. 02.1 - Replacement of SF_6 with alternate cover gas in the magnesium industry
Mandatory sectoral scopes linked to the applied methodology	Sectorial Scope: 09 – Metal Production
Conditional sectoral scopes linked to the applied methodologies	N/A

Name and UNFCCC reference number of the DOE	Carbon Check (India) Private Limited E-0052
Name, position and signature of the approver of the validation report on PRCs	Vikash Kumar Singh, Compliance Officer 

SECTION A. Executive summary

Brief summary of the project activity

The project activity consists in the replacement of the GHG SF_6 by a non-GHG SO_2 as cover gas in the Magnesium Manufacture (ingots, die-casting and molten metal). The use of SF_6 is not anymore used in the PA as it was completely replaced by SO_2.

The PA is located in the municipality of Bocaiúva, State of Minas Gerais, Brazil.

Scope of Validation

RIMA Industrial S/A has contracted Carbon Check (India) Private Limited to conduct the validation of the Post registration changes (changes of the project design) of the CDM project activity "*Conversion of SF_6 to the alternative cover gas SO_2 at RIMA magnesium production*". This request is being requested in issuance track together with the verification of the 2nd monitoring period from 01/01/2017 to 31/12/2017 (including both days).

The validation is the independent review of project description.

The scope of the validation is to establish/verify that:

1. To verify the project implementation and operation with respect to the revised PDD/06/
2. To verify that if the changes are in accordance with Project Standard version 01.0/01/
3. To verify the impacts in the additionality, scale and applicability/application of the methodology/07/.

The validation shall ensure that the project information and the new PDD report are complete and accurate.

Validation process

The validation comprises a review of the revised PDD over the operation described in the registered PDD, monitoring methodology and all related evidence provided by the project participant.

On-site visit and stakeholders' interviews are also performed as part of the validation process.

Conclusion

The validation team assigned by the DOE concludes that the revised PDD /06/ meets all the relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol and paragraph 62 of CDM M& P, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The validation has been conducted in line with the CDM VVS for project activities, version 01.0 requirements.

Considering the validation of post registration changes has occurred during the verification and considering the proposed change falls under Appendix 1 of CDM PS for project activities, Version 01.0, therefore, the design change is being submitted along with the issuance request for approval

The revision of the project activity' information is accurate and does not affect the additionality, scale and application of methodology.

CCIPL as a DOE is therefore pleased to issue a positive validation opinion of this Change of Project Design.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	L	Last name	First name	Affiliation	Involvement in

					(e.g. name of central or other office of DOE or outsourced entity)	Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader	EI	Sebben	Marcelo	CCIPL	Y	Y	Y	Y
2.	Verifier	IR	Anand	Amit	CCIPL	Y	N	N	N
3.	Technical Expert	EI	Gomes	Valdivino	CCIPL	Y	Y	Y	Y
4.	Methodological Expert	EI	Sebben	Marcelo	CCIPL	Y	Y	Y	Y
5.	Local Expert	EI	Sebben	Marcelo	CCIPL	Y	Y	Y	Y

B.2. Technical reviewer and approver of the validation report on PRCs

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Agarwalla	Sanjay Kumar	CCIPL
2.	Technical Expert	IR	Agarwalla	Sanjay Kumar	CCIPL
3.	Approver	IR	Singh	Vikash Kumar	CCIPL

SECTION C. Means of validation

C.1. Desk/document review

A desk review was conducted by the validation team that included:

a. a review of the data and information presented to verify its completeness;

b. a review of the registered PDD and information regarding changes in the project design, CDM rules and procedures for PRCs;

A complete list of documents/evidences reviewed is included as Appendix 3.

C.2. On-site inspection

Duration of on-site inspection: 02/05/2018 to 03/05/2018				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	- Walk through RIMA site o **SO_2 Gas Room**, o **FUSION Area** o **FSP Area** o **Die casting and Ingots Area**) - Checking of all meters included in the PA Interview with project operators, O&M personnel and plant Manager.	Bocaiúva	02/05/2018	Marcelo Sebben and Valdivino Gomes
2.	- Evidence assessment o checking of company's raw data o molten metal weighting manuscripts, o laboratory records o Verification of SO_2 emission records (internal, external and occupational)	Bocaiúva	02/05/2018	Marcelo Sebben and Valdivino Gomes

	Verification of SO_2 tank records Preparation of the CDM Draft Verification Report (DVR)			
3.	Evidence assessment at RIMA office - Verification of system evidences o Calibration records of all equipment o Verification of SO_2 data (consumption)	Belo Horizonte	03/05/2018	Marcelo Sebben
4.	Evidence assessment at RIMA office (BH) - Verification of system evidences o Weight records of ingots (dispatch and truck scale) and non-conform parts o Sales invoices o Weight records of molten metal (manuscripts and system) o Accounting of die-casting parts and non-conform o Weight of die casting samples and sampling procedure - ER calculation review	Belo Horizonte	03/05/2018	Marcelo Sebben
5.	Closing meeting	Belo Horizonte	03/05/2018	Marcelo Sebben

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Brito	Roberval	RIMA	02/05/2018	Site visit	Marcelo Sebben Valdivino Gomes
2.	Pereira	Antônio	RIMA	02/05/2018	Mg production, calibration and metering	Marcelo Sebben Valdivino Gomes
3.	Lima	Omar	RIMA	02/05/2018 03/05/2018	ER calculations SO2 emissions Mg production	Marcelo Sebben
4.	Gonçalves	Elias	RIMA	03/05/2018	ER calculations Sales reports Mg production	Marcelo Sebben
5.	Borges	Amanda	RIMA	03/05/2018	Environmental Aspects	Marcelo Sebben

C.4. Sampling approach

No sampling has been carried out for the validation of this PRC

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	CL 1		
Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines			
Corrections			
Changes to the start date of the crediting period			
Inclusion of a monitoring plan			
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other applied standards or tools			

Changes to the project design	CL 3		FAR 1 (open during last MP)
Changes specific to afforestation and reforestation project activities			
Others (please specify)			
Total	2		1

Note: the findings numbering are kept the same as per Verification report.

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	The registered PDD has been checked by the validation team but no revised PDD has been provided, containing the proposed changes. Thus a CL has been raised
Findings	CL 1
Conclusion	A valid version of the Project Description Design template (CDM-PDD-FORM – version 10.1/04/) available at the UNFCCC website has been used. It has been filled out in accordance with the "Instructions for filling out the PDD form". The validation team ensures that the information transferred to the new version of the form is materially the same as that in the registered PDD, being in compliance with para 280 and 281 (a) (ii) of VVS for PA, version 01.

D.2. Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines

Means of validation	Not applied
Findings	-
Conclusion	-

D.3. Corrections

Means of validation	Not applied
Findings	-
Conclusion	-

D.4. Changes to the start date of the crediting period

Means of validation	Not applied
Findings	-
Conclusion	-

D.5. Inclusion of a monitoring plan

Means of validation	Not applied
Findings	-
Conclusion	-

D.6. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other applied standards or tools

Means of validation	Not applied
Findings	-
Conclusion	-

D.7. Changes to the project design

Means of validation	**Description of the change** During this monitoring period a change in the project design has been observed. A new casting machine was installed. As per information provided to the validation team, no relevant increase in the Mg production was sought with this investment. According to interviews performed during the on-site visit, the reason for this

	installation was to avoid production stoppage during maintenance period. The project activity now have 3 casting machines instead of 2. One is kept as spare. A FAR was opened during the previous monitoring period to deal with this issue. Moreover, due to missing information, a CL also has been raised.
Findings	FAR 01 *It has been observed that for the next period it was installed a new ingot machine. The effect of this installation during the next monitoring period is not clear.* CL 3 *PDD Section A.3, the following is unclear:* - *It is not clear whether due to this project design change, higher production capacity can be achieved.* - *it was not informed if the project was running under capacity till date.* - *And will this design change not have any impact on CERs, due to decrease in SF6 consumption and increase in SO2 consumption?* *In the revised PDD why the third casting machine is not shown in the flow chart.*
Conclusion	A change in the project design has been requested to deal with this new equipment. The PP clarified to the verification team that the production capacity is given by the furnaces capacity. There was no increase in the furnace number or production capacity of each furnace due to this proposed change. Moreover, the metal production is based on market demand and not exclusively in the production capacity. The validation team checked the production increase by comparing to the estimated production in the registered PDD. In the registered PDD, the amount of 26,123 tons of Mg production has been estimated for 2017. For this monitoring period, an amount of 26,470 tons was produced. The variation was 1.3 %. According to the PP's justification, this variation in production (1.3%) is not due to production capacity increase as no improvement was made in the Mg furnaces. It is due to market conditions, sales improvement, etc. The PP also explained that the plant is not running at full capacity, thus, production variations such as this one are expected. It depends, as explained above, on market conditions. The verification team concludes that the installation of this casting machine (proposed change) does not impact in increase of capacity production but in solution of operational issues, serving as maintenance plan for the Mg production. The project participants requested a change in the project design to deal with this issue. The PRC will be requested under issuance track as it does not need prior approval by the board as per Appendix 1 of the CDM PS for project activities, para 1 d). The means of validation are the following: The Changes to the project design of a registered CDM project activity do not adversely impact any of the following: The applicability and application of the applied methodologies and, where applicable, the applied standardized baselines with which the project activity has been registered; No impact in the applicability of the methodology will occur due to the changes proposed. As per methodology, the following conditions apply i) "*This methodology applies to project activities that replace the use of cover gas SF6 in full or in part by another cover gas, HFC134a, Perfluoro-2-methyl-3-pentanone (CF3CF2C(O)CF(CF3)2) or SO2 using lean SO2 technology, in existing facilities"*. The project activity remains as substitution of cover gas SF6 by SO2 in existing facilities. The inclusion of a new casting machine will only require measurement of SO2 consumption in this equipment. The measurement is made as per the other casting machines. ii) "*All segments of the magnesium industry (as defined in Definitions section above) where SF6 is replaced*"; the project activity is the replacement of SF6 by SO2 as cover gas in an Magnesium industry. iii) *"If SO2 is used as cover gas in the project activity, only "dilute SO2" technology is used which meets the definition provided in…" the methodology:* the concentration remains the same as applied prior to this change. The inclusion of a new casting machine will not result in

	change in operation procedures. Only a new flow meter was installed which will measure the amount of cover gas in this casting machine. The production will also be measured as it was priory done. iv) *"Local regulations in the host country regarding SO2 emissions in the exhausting system should be complied with".* The compliance with local legislation is part of the Operational License[/18/]. No change in the SO2 emission control will occur due to the installation. The SO2 mixture remains being conducted in a closed and controlled room. Only diluted SO2 is used as cover gas. v) *"The methodology is only applicable if the baseline scenario is the continuation of current practice of using SF6 as a cover gas"*: no change in the baseline scenario occurred due to this requested change to the project design. This change does not affect the applicability of the methodology AM0065 version 02.1
The compliance of the monitoring plan with the applied methodologies and, where applicable, the applied standardized baselines;	
No change in the monitoring plan will occur due to the inclusion of the new casting machine. The monitoring parameters will remain the same and the production measurement will not change. Moreover, the SO2 consumption is being conducted with monitoring equipment similar to the ones already used by the PP.	
The level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan;	
The meters used to monitor the SO2 consumption are the same as already used by the project proponents. No change in the level of accuracy was observed.	
The additionality of the project activity;	
The additionality of the PA was done with barrier analysis. The additionality of the project activity was not affected by this change as follows: **First of its kind barrier:** the inclusion of a new casting machine does not change the fact that the use of diluted SO2 was the first of its kind in non annex 1 countries as explained in the PDD version 6 of the 1st crediting period[/28/] **Prevailing practice barrier:** the inclusion of a new casting machine does not change the fact that the use of diluted SO2 is not the prevailing practice in magnesium industry at the time when the PA was validated. **Technological barrier:** the same technology was kept in this new casting machine installed. The technological barriers were the same when compared to the business-as-usual use of SF6 as cover gas. **Quality/productivity barrier:** the inclusion of a new casting machine does not change the quality/productivity barrier when it comes to product quality. The reason for the installation of new casting machine is to increase the machinery availability and not directly increase the production. The production demand is ruled by market conditions. **Operational culture barriers:** the inclusion of a new casting machine does not change the operational culture barrier as the use of SO2 as cover gas was not the business-as-usual and these barriers remain valid. **Investment analysis:** the installation of new casting machine will not cause increase in investment in the substitution of cover gas. All SO2 structure remains the same. Only a new flow meter was installed. And this flow meter was taken from other equipment (Mg Injector #10), which was uninstalled. Thus, the inclusion of a new casting machine does not affect the investment analysis. **Common practice:** the installation of new casting machine does not affect the common practice status. No new technology was installed and the comparison carried out at the validation stage remains unaltered.	

	Concluding, the installation of new casting machine does not affect the additionality of the project activity.
	The scale of the project activity.
	The project activity remains as large scale project activity. The change does not affect the scale of the project activity. Moreover, it is important to point out that the company's main activity is Mg production and during its operation, improvements in production, maintenance, operations are expected. These changes not necessarily were known at the validation of the project activity but its necessity was observed along the monitoring periods as the plant was running under capacity and, in order to achieve its design capacity, some improvements are carried out. As explained above, no increase in the plant capacity occurred due to the proposed change, but only improvements in maintenance plan. This assessment complies with para 309 b) of the VVS for PA version01.0.

D.8. Changes specific to afforestation and reforestation project activities

Means of validation	Not applied
Findings	-
Conclusion	-

SECTION E. Internal quality control

The final validation report passed a technical review before being submitted to the UNFCCC Executive Board. A technical reviewer qualified in accordance with the CCIPL's qualification scheme for CDM validation and verification performed the technical review.

SECTION F. Validation opinion

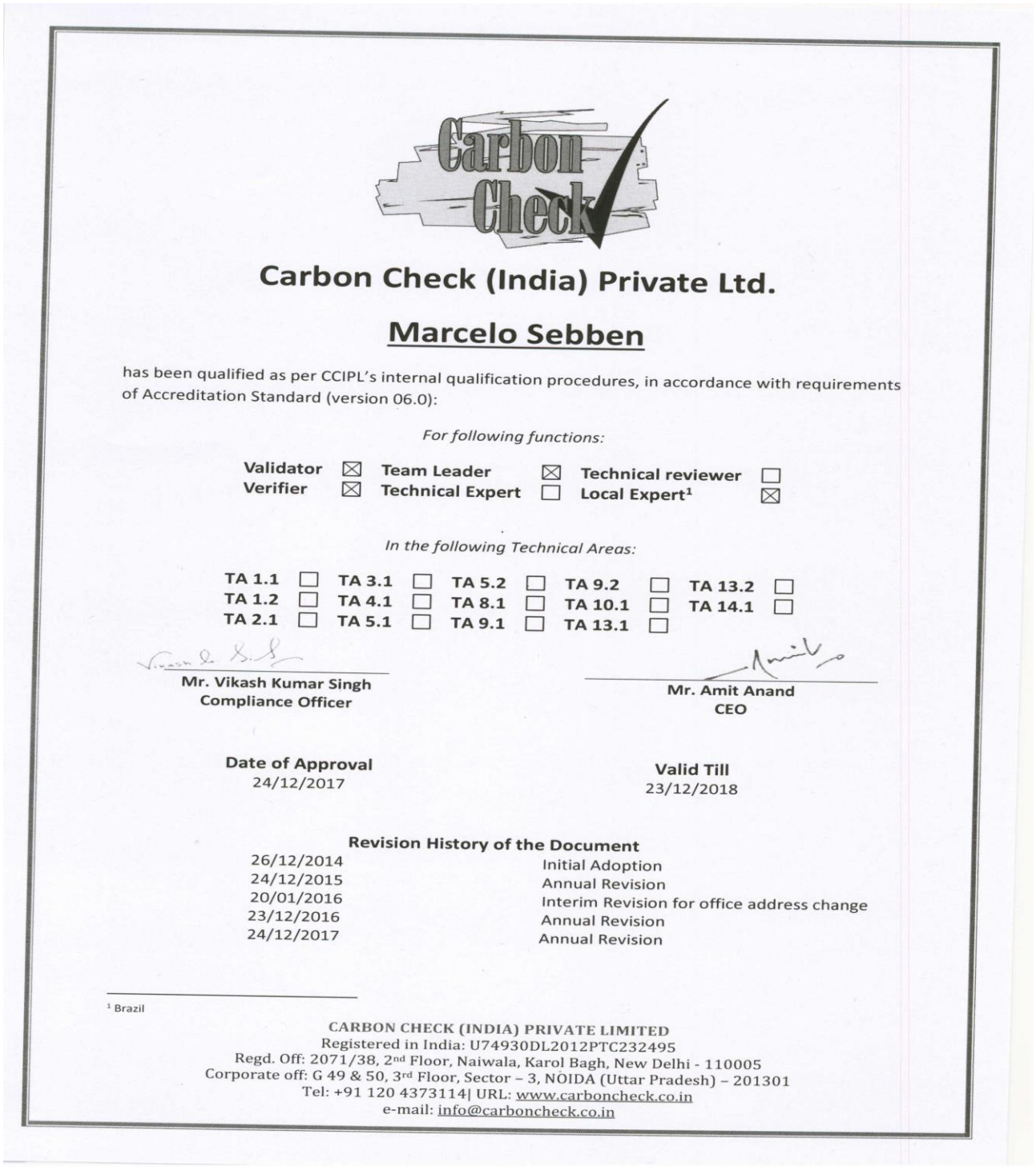
Carbon Check (India) Private Ltd. (CCIPL) has performed the validation of change of project design requested during the 2nd periodic verification of the 2nd Crediting period of the registered CDM Project Activity "Conversion of SF_6 to the alternative cover gas SO_2 at RIMA magnesium production" having UNFCCC reference number 2486. The validation team assigned by the DOE concludes that the project activity as described in the revised PDD (version 04 dated 15/06/2018)/06/ meets all the relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol and paragraph 62 of CDM Modalities & Procedures, the modalities and procedures for CDM Executive Board (Marrakesh Accords) and subsequent decisions by the COP/MOP and CDM Executive Board. The validation has been conducted in-line with the CDM VVS for project activities, version 01.0 requirements /03/.

The proposed change – inclusion of a new casting machine – will be requested under issuance track as per CDM PS for PA ver 01.0 Appendix 1, para 1 d), as the proposed changes do not adversely impact the application of methodology, scale and additionality of the project activity. The request is being carried out as per CDM PCP for project activities, ver. 01.0 para 199.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CM	Combined Margin
CME	Coordinating/Managing Entity
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CP	Crediting Period
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
FAR	Forward Action Request
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
LoA	Letter of Approval/Authorization
MoC	Modalities of Communication
MoV	Means of Validation
MP	Monitoring Plan
PA	Project Activity
PCP	Project Cycle Procedure
PDD	Project Design Document
PE	Project Emission
PP	Project Participant
PS	Project Standard
SEMAD	Environment and Sustainable Development Secretariat of the State of Minas Gerais
SIAM	Integrates system of Environmental Information from the State of Minas gerais
tCO_2e	Tonnes of Carbon di oxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VT	Validation Team
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers



Carbon Check (India) Private Ltd.

Marcelo Sebben

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 06.0):

For following functions:

Validator	☒	Team Leader	☒	Technical reviewer	☐
Verifier	☒	Technical Expert	☐	Local Expert[1]	☒

In the following Technical Areas:

TA 1.1	☐	TA 3.1	☐	TA 5.2	☐	TA 9.2	☐	TA 13.2	☐
TA 1.2	☐	TA 4.1	☐	TA 8.1	☐	TA 10.1	☐	TA 14.1	☐
TA 2.1	☐	TA 5.1	☐	TA 9.1	☐	TA 13.1	☐		

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

Date of Approval
24/12/2017

Valid Till
23/12/2018

Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2016	Annual Revision
24/12/2017	Annual Revision

[1] Brazil

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Carbon Check (India) Private Ltd.

De Sousa Gomes Valdivino

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 06.0):

For following functions:

Validator	☐	**Team Leader**	☐	**Technical reviewer**	☐
Verifier	☐	**Technical Expert**	☒	**Local Expert**[1]	☒

In the following Technical Areas:

TA 1.1 ☐	**TA 3.1** ☐	**TA 5.2** ☐	**TA 9.2** ☐	**TA 13.2** ☐
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TA 2.1 ☐	**TA 5.1** ☐	**TA 9.1** ☒	**TA 13.1** ☐	

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

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Amit Anand

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For following functions:

Validator	☒	**Team Leader**	☒	**Technical reviewer**	☒
Verifier	☒	**Technical Expert**	☒	**Local Expert**[1]	☒

In the following Technical Areas:

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TA 1.2	☒	**TA 4.1**	☐	**TA 8.1**	☒	**TA 10.1**	☐	**TA 14.1**	☒
TA 2.1	☐	**TA 5.1**	☐	**TA 9.1**	☐	**TA 13.1**	☒		

Vikash

Mr. Vikash Kumar Singh
Compliance Officer

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[1] India, South Africa

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Carbon Check (India) Private Ltd.

Sanjay Agarwalla

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 06.0):

For following functions:

Validator	☒	Team Leader	☒	Technical reviewer	☒
Verifier	☒	Technical Expert	☒	Local Expert[1]	☒

In the following Technical Areas:

TA 1.1	☒	TA 3.1	☒	TA 5.2	☒	TA 9.2	☒	TA 13.2	☐
TA 1.2	☒	TA 4.1	☒	TA 8.1	☐	TA 10.1	☐	TA 14.1	☐
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Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
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Date of Approval
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e-mail: info@carboncheck.co.in

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	UNFCCC	Standard: CDM PS for PA	version 01.0	Others
2.	UNFCCC	Standard: CDM PCP for PA	version 01.0	Others
3.	UNFCCC	Standard: CDM VVS for PA	version 01.0	Others
4.	UNFCCC	Form: CDM-PDD-FORM	version 10.1	Others
5.	PP	Registered PDD	version 2, dated 27/09/2016	Others
6.	PP	Revised PDD (Clean and Tracking changes)	version 4, dated 15/06/2018	
7.	UNFCCC	Methodology: AM0065 - Replacement of SF_6 with alternate cover gas in the magnesium industry	version 02.1	Others
8.	UNFCCC	- Combined tool to identify baseline scenario and demonstrate additionality	Version 06.0	unfccc
9.	PP	1. ER calculations spreadsheet -	version 3 (final)	PP
10.	DNA	1. Ministry of Science, Technology and Innovation (DNA of Brazil) 2. Ministry of Infrastructure and the Environment / Directorate for Climate, Air and Noise (DNA of Netherlands) and 3. Climate and Pollution Agency (DNA of Norway)	http://www.mct.gov.br/ http://www.government.nl/ministries/ienm dna_cdm@klif.no	Other
11.	ECOAR	- ISO 17025 certificate # issued by RMMG valid until 27/10/2019		
12.	TÜV SÜD	- Validation Report of the 2nd crediting period for CDM project "Conversion of SF6 to the alternative cover gas SO2 at RIMA magnesium production" version 2, dated 18/10/2016	http://cdm.unfccc.int/Projects/DB/TUEV-SUED1239262577.48/view	Other
13.	IQNET PP	- Quality Management System (QMS) ISO 9001:2008 valid until 09/01/2018 issued by RINA. Cert # 14073/06/AN - QMS procedures and manual.		PP
14.	UNFCCC	- Kyoto Protocol (1997)	http://unfccc.int/kyoto_protocol/items/2830.php	
15.	COPAM CONAMA	1. Normative deliberation Copam # 187, Annex XVII, from 2013-09-19, fixing the SO_2 emission limit from a non-listed source in 1800 mg/Nm³, issued by Environmental Policies	CONAMA Resolution 03/90 http://www.mma.gov.br/port/conama/res/res90/res0390.html	

		Council of the State of Minas Gerais (COPAM - Conselho Estadual de Política Ambiental). 2. Regulation #11 from 1986, revised by Deliberation # 01 from 2001-02-24, fixing the SO_2 emission limit from a non-listed source in 2500 mg/Nm³, issued by Environmental Policies Council of the State of Minas Gerais (COPAM - Conselho Estadual de Política Ambiental). 3. Resolution 003/90 issued in 1990-06-28 by CONAMA (National Environment Council) – determining average annual concentration of 80 µg/m³ of air or average hourly concentration of 365 µg/m³ of ambient air, which cannot be exceeded more than once in a year		
16.	COPAM	- Environmental Operational License # 317/2012 issued by COPAM and valid until 11/12/2017 - Operational License Renewal protocol # 0875478/2017 issued on 09/08/2017		
17.	PP	- Maintenance and operations logbook		
18.	SEMAD	1. SEMAD- Secretary of Environment and Sustainable development from the State of Minas Gerais (Secretaria de Estado de Meio Ambiente e Desenvolvimento Sustentável) 2. SIAM – Integrated System of Environmental Information	Normative deliberation # 187/2013 http://www.siam.mg.gov.br/sla/download.pdf?idNorma=29875 Regulation 11/1986 http://www.siam.mg.gov.br/sla/download.pdf?idNorma=92 Deliberation 1/1992: http://www.siam.mg.gov.br/sla/download.pdf?idNorma=396	
19.	PP	Training regarding SO_2 emissions and working procedures during the whole monitoring period ref # RQ-BHZ-DQ-CQ-06 rev.02		PP
20.	UNFCCC	Glossary “CDM terms” (version 08.0)	https://cdm.unfccc.int/filestorage/e/x/t/extfile-20150226124447549-glos_CDM.pdf/glos_CDM.pdf?t=UmZ8bnFjODI3fDCW9A3vJwR03kQQh4sbLiYu	Other
21.	DNA	DNA of Brazil	http://www.mct.gov.br	Other
22.	IPCC	IPCC publications	www.ipcc-nggip.iges.or.jp	Other

23.	UNFCCC	UNFCCC	http://cdm.unfccc.int	Other
24.	PP	Registered PDD for the 1st crediting period of the PA ““Conversion of SF6 to the alternative cover gas SO2 at RIMA magnesium production”	version 6, dated 03/03/2009	Others

Appendix 4. Clarification requests, corrective action requests and forward action requests

The findings numbering are kept as per Verification report.

Table 1. Remaining FAR from latest verification

FAR ID	01	**Section no.**	E.2	**Date :** 21/03/2017
Description of FAR				
It has been observed that for the next period it was installed a new ingot machine. The effect of this installation during the next monitoring period is not clear.				
Project participant response				**Date :**08/05/2018
Rima explains that in recent years has experienced an increase in the production of the magnesium (liquid metal and ingot) fusion area due to the growth in demand in several industrial consumer segments such as aluminum, aerospace, electronic (smartphone, computer chips,etc). *This growth contributed positively to Rima's increase in the production of magnesium (especially ingots) from Rima which, between 2011 and 2014, registered an average annual growth of 5.70%.* *As a consequence of this scenario, the frequency of use of the two casting machines has become continuous and uninterrupted.* *As shown in the PDD of the second crediting period, Rima projects that demand for magnesium ingots will continue growing in the next years.* *It happens that, in the event of any or both of the two existing casting machines, whether due to preventive or corrective maintenance, the ingot production is reduced and compromised until the maintenance procedures are finalized.* *Therefore, in order not to compromise Rima's magnesium casting operations, it was decided to install a third casting machine in 2017 year. The start-up is scheduled for the second half of that year.* *Finally, Rima emphasizes that the installation of the third machine has the sole purpose of serving the operation and maintenance plan of the magnesium ingot stage. That is, there is no increase in the production capacity of magnesium.*				
Documentation provided by project participant				
Evidences during Site visit and MR version 3				
DOE assessment				**Date :**21/05/2018
First of all, it is important to clarify that the correct name of the equipment installed is casting machine and not ingot machine as informed in the FAR above. The equipment is part of the ingot line and serves to mould molten metal into ingots. *It was evidenced during the site visit that the new casting machine was installed. As per interviews to the plant operators, the installation was due to increase in the plant availability but not in the production capacity. The verification team observed that the estimated production for 2017 in the registered PDD did not change significantly when compared to the actual production: 26,123 t (registered PDD pg 19) against 26,470 t in the ER calculation spreadsheet for this MP.* ***FAR is closed***				

Table 2. CLs from this validation

CL ID	01	**Section no.**	E.4.6	**Date :**03/05/2018

Description of CL	
The PP did not provide the revised version of the PDD as per requirements of post registration changes request	
Project participant response	**Date :** 08/05/2018
Rima clarifies that it is providing a new version of the PDD, including the post registration changes (PRC). *Therefore, Rima it is sending attached jointly with this file the new version of PDD.*	
Documentation provided by project participant	
PDD version 3	
DOE assessment	**Date:** 21/05/2018
The revised PDD has been provided to the verification team considering all changes requesting during this verification period. The latest version of the PDD template has been used. No changes in the PDD were observed apart from the ones indicated in the Post Registration Change and the ones related to change in the PDD template. **CL is closed**	

CL ID	03	Section no.	E.4.6	Date :12/06/2018
Description of CL				
PDD Section A.3, the following is unclear: - *It is not clear whether due to this project design change, higher production capacity can be achieved.* - *it was not informed if the project was running under capacity till date.* - *Will this design change not have any impact on CERs, due to decrease in SF6 consumption and increase in SO2 consumption?* - *In the revised PDD why the third casting machine is not shown in the flow chart.*				
Project participant response				**Date :** 15/06/2018
1. *It is not clear whether due to this project design change, higher production capacity can be achieved.* *Answer:* *Firstly Rima clarify that the casting machine is an equipment that it is used to give a format of ingots at liquid magnesium.* *The casting machine receive the liquid magnesium produced in the furnaces. Rima did not install new furnaces or expanded the capacity of production of actual furnaces.* *Thus, the capacity of production did not changed/expanded.* *As we explained on this section, the installation of a third casting machine is due because the other two casting machines were being used continuously and in order to not compromise the operation of continuous casting, Rima decided to install the third casting machine.* 2. *it was not informed if the project was running under capacity till date.* *Answer:* *Yes. But as we explained above the capacity of production did not changed after of installation of third casting machine.* 3. *And will this design change not have any impact on CERs, due to decrease in SF6 consumption and increase in SO2 consumption?* *Answer:* *There is no impact on CERs because not changed the capacity of magnesium production.* 4. *In the revised PDD why the third casting machine is not shown in the flow chart*				

Answer: *The flow chart detailed including the third casting machine is showed in Appendix 5, section 4.2.2 of new version of PDD.*
Documentation provided by project participant
PDD version 4
DOE assessment **Date:** 15/06/2018
1. *The PP clarified that there will not be increase in the Mg production as there was no increase in the furnace numbers or increase in the furnace capacity. These equipment are the responsible for Mg production itself. The casting machines are applied only to mould ingots consuming the molten metal. Thus, no increase in Mg production is envisaged due to installation of new casting machine as the production depends on the furnace capacity. The validation team agrees that the installation of a new casting machine does not result in increase of Mg Production. This conclusion is based on PP's justification and on the Mg production achieved during this monitoring period, which was very close to the one estimated in the registered PDD (26,123 t (registered PDD pg 19) against 26,470 t in the ER calculation spreadsheet for this MP).* 2. *The validation team comprehends that the installed capacity of the PA did not change due to the installation of new casting machine as the total production is given by the furnaces. These furnaces, as explained by the PP, might be operating under capacity but they were already presented in the registered PDD. The validation team understands that the estimated production was given based on plant capacity, not taking into account operational issues. The proposed change (installation of new casting machine) was performed to prevent reduction in productivity due to operational issues (maintenance of equipment) , thus, not being responsible for capacity increase, but for solution of operational stoppages.* 3. *The SO2 consumption estimated in the validation phase was based on the estimated Mg production. The Mg production was based on the plant capacity, historic production, market conditions, etc. Thus, as no increase of Mg production is envisaged due to the installation of new casting machine, the verification team understands that no increase in the SO2 consumption, and consequently, no increase in the CERs will be achieved due to this proposed change.* 4. *It is explained now that the diagram corresponds only to a flow diagram. The complete diagram containing the equipment is duly presented in Appendix 5, section 4.2.2 of the revised PDD.* *CL is closed*

Table 3. CARs from this validation

CAR ID	xx	**Section no.**	xx	**Date :** DD/MM/YYYY
Description of CAR				
- *Not applicable*				
Project participant response				**Date :** DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				**Date:** DD/MM/YYYY

Table 4. FARs from this validation

FAR ID	xx	**Section no.**	xx	**Date :** DD/MM/YYYY

Description of FAR	
- *Not applicable*	
Project participant response	**Date :** DD/MM/YYYY
Documentation provided by project participant	
DOE assessment	**Date:** DD/MM/YYYY

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Document information

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02.0	31 October 2017	Revision to align with the requirements in the “CDM validation and verification standard for project activities” (version 01.0).
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