



DET NORSKE VERITAS

ASSESSMENT REPORT OF METHODOLOGY ELEMENT UNDER VCS

Conversion from SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON

Climate Change Capital
Revision No. 03

PROJECT NO: 99800109
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Det Norske Veritas (U.S.A.) Inc. has performed the third verification of the GHG emission reductions achieved by the project “*Emission Reduction Protocol for Conversion of SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON*” at two locations, one in Eaton Rapids, Michigan, United States (U.S.) and the second in Strathroy, Ontario, Canada, during the period of 1 January, 2010 to 31 December, 2010.

In DNV’s opinion, the GHG emission reductions reported for the project in the monitoring report of 21 April, 2011 are fairly stated.

The GHG emission reductions were calculated correctly on the basis of the approved monitoring CDM methodology AM0065 (Version 2.1) and the Verified Carbon Standard (VCS) Project Design Document of 9 March, 2009.

Det Norske Veritas (U.S.A.) Inc. is able to certify that the emission reductions from the project “*Emission Reduction Protocol for Conversion of SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON*” during the period 1 January, 2010 to 31 December, 2010 equate to 182 257 tCO₂e (Michigan, U.S.) and 17 656 tCO₂e (Ontario, Canada),

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ABBREVIATIONS

CAR	Corrective Action Request
CCC	Climate Change Capital
CF	Conservative Factor
CDM	Clean Development Mechanism
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DNV	Det Norske Veritas
FARs	Follow-up Action Requests
GHG	Greenhouse Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
Mass DEP	Massachusetts Department of Environmental Protection
MFC	Mass Flow Controllers
Mg	Magnesium
NGO	Non-governmental Organization
PD	Project Document
SO ₂	Sulfur Dioxide
SF ₆	Sulfur Hexafluoride
tCO ₂ e	Tonnes CO ₂ equivalent
VCS	Verified Carbon Standard
VCS PD	Verified Carbon Standard Project Document
VCU	Verified Carbon Unit
VER	Verified Emission Reduction



1. INTRODUCTION

Climate Change Capital (CCC) retained Det Norske Veritas (U.S.A.) Inc. to verify the emissions of the “*Emission Reduction Protocol for Conversion of SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON*” project (the project) for the third monitoring period from 1 January, 2010 to 31 December, 2010. This report contains the findings from the verification and a certification statement for the verified emission reductions (VER). The validation for the project was finalized on 1 April, 2009 /21/, the first verification was finalized on 6 April, 2009 /23/ and the second verification was finalized on 23 August, 2010 /24/. DNV issued the validation opinion based on the Verified Carbon Standard Project Document (VCS PD) of 9 March, 2009 /21/.

The verification team consisted of the following personnel:

Role/Qualification	Last Name	First Name	Country
Technical Reviewer	Toole O’Neil	Barbara	U.S.
VCS Validator /Project Manager	Warmerdam	John	U.S.

1.1 Objective

Det Norske Veritas (U.S.A.) Inc. has been commissioned by Climate Change Capital to verify and certify the greenhouse gas (GHG) emission reductions reported for the “*Emission Reduction Protocol for Conversion of SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON*” for the period 1 January, 2010 to 31 December, 2010, equating to 182 257 tCO₂e (Michigan, U.S.) and 17 656 tCO₂e (Ontario, Canada).

Verification is the periodic, independent review and *ex-post* determination by a Verifier of the monitored GHG emission reductions that have occurred as a result of a project activity during a defined verification period. Certification is the written assurance by a Verifier that, during a specific period of time, a project activity achieved the stated emission reductions.

1.2 Scope and Criteria

The verification scope includes:

- Verifying that the actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- Evaluating the GHG emissions reduction data and verifying that the reported GHG emission data is sufficiently supported by evidence, i.e., monitoring records.



- Performing a GHG emissions reduction project verification to a 5% materiality threshold and a reasonable level of assurance.
- Writing a verification report and opinion regarding the quality of the reported GHG emission reduction data.

The verification shall ensure that reported emission reductions are complete and accurate in order to be certified. The verification team has employed a risk-based approach, focusing on the identification of significant reporting risks.

1.3 Verified Carbon Standard Project Description

Meridian Magnesium Products' (Meridian's) primary business is the production and casting of magnesium alloys into automotive parts using an injection molding process. This process requires a protection system to prevent the ignition of molten magnesia in the presence of air. The protection system historically used by Meridian is sulfur hexafluoride (SF₆) gas at their plants in Eaton Rapids, MI, U.S. and Strathroy, ON, Canada. The density and low reactivity of the gas make it ideal for use in the casting of reactive metals. Some of the SF₆ used as cover gas escapes to the atmosphere during the casting process. The SF₆ gas has a high global warming potential (GWP) once it has been released to the atmosphere.

In this project, Meridian has replaced SF₆ with a new cover gas called Novec-612™ (C₂F₅COC₃F₇), a patented gas manufactured by 3M that has not previously been used in the U.S. or Canada for this purpose. It is expected that Novec-612™, in combination with sulfur dioxide (SO₂) will replace SF₆ as a cover gas at both project sites.

1.4 Level of Assurance and Materiality

DNV provides a reasonable assurance with a materiality threshold of 5% that the project meets Verified Carbon Standard (VCS) 2007.1 criteria. To ensure complete transparency, DNV has included the list of clarifications and corrective actions raised during verification in Table 1, Section 3.1. The changes implemented, along with the responses from the project developer, are included in this table.

2. METHODOLOGY

All factors and issues that constitute the basis for emission reductions from the project were assessed during verification, according to requirements contained in AM0065 Version 2.1, "Replacement of SF₆ with Alternate Cover Gas in the Magnesium Industry." A site visit was conducted in Eaton Rapids, Michigan on 10 March, 2011, and in the Strathroy, Ontario plant on 11 March, 2011. DNV had identified key reporting risks and used this assessment to determine to what extent the project operator's control systems were adequate for mitigating these risks. In addition, other areas that can have an impact on reported emission reductions have been reviewed in detail during the verification process and are explained in Section 3 of this report.



3. VERIFICATION FINDINGS

3.1 *Remaining Issues, including any Material Discrepancy, from Previous Validation*

There were no Follow-up Action Requests (FARs) issued in the first verification report dated 6 April, 2009 for the monitoring period 1 January, 2007 to 31 December, 2008. Three FARs were identified in the second verification dated 23 August, 2010 for the monitoring period 1 January, 2009 to 31 December, 2009, and are listed below:

Previous Follow-up Action Requests

- FAR 1 The calibration documents for all flow meters and scales need to be maintained for scales and flow meters for Novec-612™ and SO₂.
- FAR 2 DNV was unable to cross-verify the invoices for magnesium bought to the amount of magnesium melted reported in the Excel file. CCC and Meridian need to revise the monitoring plan to include procedures to track the magnesium bought and its usage in order to record any losses.
- FAR 3 The magnesium melted is not recorded per station. DNV found it complicated to verify the total amount of magnesium melted. CCC and Meridian need to revise the monitoring technique to simplify the process.

The project proponent has provided explanations in the current monitoring report and back-up documentation to address the FARs above. DNV concludes that the follow-up action requests have been addressed adequately in the monitoring report for 1 January, 2010 through 31 December, 2010. CCC should continue to provide this level of detail and support in all subsequent monitoring periods.

3.2 *Remaining Immaterial Issues*

A number of immaterial issues (CLs and CARs) and one (1) FAR were identified during this verification.

New Follow-up Action Requests

- FAR 4 During this verification it was noted that a leak occurred in the SF₆ delivery system of the Eaton Rapids facility some time near the 10th of February, 2011. The project proponent must ensure that the mass and CO₂e of SF₆ released during this event is properly accounted for in the monitoring report for 2011. Specifically, whatever mass is determined to



have been released during this event cannot have the 0.5 destruction factor applied when calculating project emissions, as it was not used as cover gas and will not have been degraded by that process.

All CLs and CARs are detailed in Table 1.

**Table 1: List of Corrective Actions and Clarifications**

Corrective Actions Required/Clarification	Response	Comment
CAR 1 The UNFCCC methodology (AM0065) is designed to provide a conservative estimate of project emissions. A data integrity factor ($DI_{SF_6, CON, PJ, k, j, y}$) equal to 1.05 must be applied to SF_6 use, unless the project proponent can demonstrate that their estimates of SF_6 use are greater than 95% accurate. The calculation spreadsheet does not include the 1.05 factor for Eaton Rapids and the existing use records and invoices are inconsistent and do not provide evidence that the estimates are greater than 95% accurate. The project proponent should provide additional evidence supporting data accuracy or revise emissions estimates to include the data integrity factor.	The monitoring report, calculation spreadsheet and emissions estimates were amended to include the data integrity factor (1.05) for SF_6 use. The revised calculation spreadsheets and monitoring report have been provided.	• DNV accepts this explanation, has reviewed the revised emissions reductions and monitoring report, and CAR 1 is closed.

**Table 1: List of Corrective Actions and Clarifications**

Corrective Actions Required/Clarification	Response	Comment
CAR 2 The total SF₆ use estimates entered into the calculation spreadsheet (6 520 pounds) do not match the pro-rated values contained in the log sheets provided for the Eaton Rapids recycling facility (6 880 pounds). The project proponent should provide additional evidence supporting data accuracy or revise emissions estimates to include the actual SF₆ use data from log sheets.	The difference in SF₆ accounting is largely due to the SF₆ gas use from bottles that overlap 2009-2010 and 2010-2011. Some days the Meridian operations use no SF₆ gas, while on other days they do, based upon metal received. Because of this, a daily average cannot be used to pro-rate gas usage. Meridian carried over only 10 lbs from 2009 for usage in 2010. The remainder of the SF₆ gas usage has already been accounted for in the project emissions for 2009. In addition, Meridian shuts down for the Christmas holiday every year around 22 December. According to the SF₆ log sheet from 2011, the SF₆ bottles installed on 10 December, 2010 were not in use until 1 January, 2011. When operations started up on 1 January, 2011 after the Christmas shut down, there was a leak in the system that drained both banks of bottles in three days. Therefore, the bottles from 10 December, 2010 (total weight 327 lbs) should be accounted for in project emissions for 2011.	• DNV accepts this explanation, has reviewed the revised emissions reductions and monitoring report, and CAR 2 is closed. • The project proponent must ensure that for the 2011 monitoring report, SF₆ use from end of year 2010 is fully explained and that the 0.5 destruction factor is not used for the SF₆ that escaped during the leakage event.

**Table 1: List of Corrective Actions and Clarifications**

Corrective Actions Required/Clarification	Response	Comment
CAR 3 The example calculations on pages 11 and 12 of the monitoring report are incorrect and misleading, as they do not include all factors used for the emissions estimates. The project proponent should remove these calculations or correct them to accurately reflect the emissions calculations.	These calculations have been removed from the monitoring report and a revised monitoring report has been provided.	DNV accepts this explanation, has reviewed the revised monitoring report, and CAR 3 is closed.
CL1 The monitoring report excludes SF ₆ use at the recycling line of the Strathroy plant from the baseline scenario. This is based on the assertion that all metal use at this plant is the MRI alloy, whose processing is incompatible with SO ₂ as a cover gas. Please provide supporting documentation for this assertion. From 28 November-1 December, 2010, the 'Plant d Production.xls' spreadsheet indicates that the alloy AZ91D was used. Please provide additional clarification.	A worksheet, entitled 'Plant d Production.xls' was provided. This spreadsheet shows production values at the Ontario facility. Approximately 150 330 pounds of AZ91D metal was melted over several days, representing approximately 2.1% of the total metal for the year in the recycling operation. This level of metal recycling is immaterial to the overall project emissions and emission reductions.	DNV understands that processes at this facility cannot be adapted for such small amounts of production and concludes that CL 1 is closed.

**Table 1: List of Corrective Actions and Clarifications**

Corrective Actions Required/Clarification	Response	Comment
CL 2 The flow meters for Novec 612 in the remelt section of the Eaton Rapids facility (Serial #s 107010331530 and 107110352869) have calibration certifications (2708_001.pdf) that indicate that they are out of specification. Please provide documentation to verify meter accuracy.	The Polycontrols Certifications provided for the mass flow meters indicate the “Initial condition summary” and the “Final condition summary.” The initial condition summary states that they are out of manufacturer’s specifications. Once calibrated, the final condition summary indicates that they respect manufacturer specifications. These mass flow controllers were calibrated and stored in sealed bags until installation in July, 2010. When installed for use, they were within manufacturer specifications. Similar to the weigh scales, the mass flow meters are calibrated annually. Furthermore, the mass flow meters have very little to do with the quantification of the cover gas used. Cover gas usage is determined through mass balance accounting methods.	• DNV accepts this explanation and CL 2 is closed.
CL 3 The calibration requirements for the weigh scale (Serial # 24098) indicate a six-month calibration frequency. Electronic copies of calibrations for this scale include one dated 22 January, 2010, but no others for 2010. Please provide documentation to verify scale accuracy.	A hard copy of the calibration certificate for this scale, dated 16 July, 2010, was provided.	• The scale is within calibration. • CL 3 is closed.

**Table 1: List of Corrective Actions and Clarifications**

Corrective Actions Required/Clarification	Response	Comment
CL 4 The original SF₆ tracking sheet from the Eaton Rapids plant was damaged and entries past 28 January, 2010 are not legible. The SF₆ usage from the invoices (4785_001.pdf and 4785_017.pdf) do not match the values indicated on the tracking sheet. Please provide further clarification on the bottle change-out process and invoicing records.	A surrogate SF₆ usage tracking sheet was provided, along with invoicing records for SF₆ delivery. The SF₆ sheet from the floor that was damaged was found electronically prior to the damage and has been provided (SF₆ sheet die cast.pdf). The file (SF₆ from Invoices and Inventory Eaton Rapids 2010.xls) shows the bottles invoiced from the Airgas invoices with the inventory at the end of each month. Meridian did not purchase SF₆ in Oct, Nov., or Dec. 2010. The invoices show bottles delivered and returned. According to the SF₆ cover gas vendor, Airgas, they assume that if three SF₆ cylinders are delivered, then three are returned. If the driver changes the returned number then it may get recorded if the person entering the information notices that it has been changed. If the returned number is not changed in their system, then it would show inaccurate information.	• DNV accepts this explanation and CL 4 is closed.



3.3 *Project Implementation*

The project implementation for the replacement of SF₆ has taken place in phases at different locations. The project implementation schedule is shown below:

U.S. Die Casting	1 February, 2008
U.S. Recycling	1 April, 2008
Canada Die Casting	1 May, 2008
Canada Recycling	1 January, 2007

3.4 *Completeness of Monitoring*

The monitoring methodology as described in AM0065 Version 2.1 “Replacement of SF₆ with Alternate Cover Gas in the Magnesium Industry” is correctly applied. Project emissions of CH₄, C₂F₆ and C₃F₈ that result from the interaction between Novec-612™ and molten magnesium are not monitored in this application. Instead, the project proponent is incorporating the conservative factor (CF) described in Equation 10 of AM0065 to account for these emissions. The data monitored during the period of 1 January, 2010 to 31 December, 2010 are shown below in Table 2.

**Table 2: List of Monitored Parameters**

	Metal Produced		Novec-612™ Consumed		SO₂ Consumed		SF₆ Consumed	
	<i>U.S.</i>	<i>Canada</i>	<i>U.S.</i>	<i>Canada</i>	<i>U.S.</i>	<i>Canada</i>	<i>U.S.</i>	<i>Canada</i>
Metering Device Model Type	Sterling weight scale (810)	Pennsylvania Weight Scale (7 600)	Novec high flow mass flow meter (M5850)	Novec high flow mass flow meter (M5850)	SO ₂ mass flow meter (M5850)	SO ₂ mass flow meter (M5850)	SF ₆ flow meter (J11A101J854)	SF ₆ flow meter (J11A101J854)
Location of the Meter	Recycling	Recycling	Remelt cover gas cabinet	Main die cast cover gas cabinet	Remelt cover gas cabinet	Recycling cover gas cabinet	Each cell	Each cell
Units Measured	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs	Lbs
Calibration Frequency	Annually	Annually	Annually	Annually	Annually	Annually	N/A	N/A
Data Migration	Take reading from scale and manually enter into central Excel file.	Take reading from scale and manually enter into central Excel file.	Take flow totalizer reading and manually transfer data to Excel file.	Take flow totalizer reading and manually transfer data to Excel file.	Take flow totalizer reading and manually transfer data to Excel file.	Take flow totalizer reading and manually transfer data to Excel file.	Take flow totalizer reading and manually transfer data to Excel file.	Take flow totalizer reading and manually transfer data to Excel file.
Data Reporting Frequency	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly



The monitoring of the project is complete and in accordance with the approved monitoring methodology. The monitoring methodology and sustaining records are sufficient to enable verification of emission reductions. The clarifications raised during the verification process have been addressed in order to ensure that the project monitoring is complete and accurate.

3.5 Emission Reduction Calculations

Meridian Magnesium Products was involved in the design and installation of the project and also maintains the control and monitoring system.

The project applies the approved Clean Development Mechanism (CDM) methodology AM0065, Version 2.1 “Replacement of SF₆ with Alternate Cover Gas in the Magnesium Industry.” The approved default values determined during the validation phase have been used to estimate the emission reductions from the implementation of this project activity and are shown in Table 3.

Table 3: List of Default Values

ID	Variable	Unit	Value	Remark
1	SF ₆ GWP	TCO ₂ eq/TSF ₆	23 900	According to CDM EB/16/
2	Novec CF (conservative factor)	TCO ₂ eq/TNovec used	2 830	According to AM0065/18/
3	DF	Fraction	0.5	According to AM0065 /18/
4	DI (DISF6,CON,BL)	Fraction	0.95	According to AM0065 /18/
5	DI (DISF6,CON,PJ,k,j,y)	Fraction	1.05	According to AM0065 /18/
6	Lowest baseline emissions factor for U.S. die casting	tSF ₆ /tMg	0.0000914	From baseline assessment
7	Lowest baseline emissions factor for U.S. recycling	tSF ₆ /tMg	0.000385	From baseline assessment
8	Lowest baseline emissions factor for Canada die casting	tSF ₆ /tMg	0.0000549	From baseline assessment
9	Lowest baseline emissions factor for Canada recycling	tSF ₆ /tMg	0.000684	From baseline assessment



The project participant used SF₆ GWP of 22 800 for the monitoring period 1 January, 2007 to 31 December, 2008. The SF₆ GWP of 22 800 is consistent with the IPCC 4th Assessment report and with the Massachusetts Department of Environmental Protection (MassDEP). The buyer of the Verified Emission Reduction (VER) credits from the monitoring period 1 January, 2007 to 31 December, 2008 requested that the GWP conform to the MassDEP.

In the monitoring reports dated 24 August, 2010 and 21 April, 2011, the project participant has revised the SF₆ GWP from 22 800 to 23 900. SF₆ GWP of 23 900 is consistent with the methodology contained in AM0065. DNV has accepted this revision as it is consistent with the CDM methodology and CDM Executive Board EB guidance /17/.

The *ex-post* estimation of the emission reductions for the monitoring period is determined using the equation:

$$\text{Baseline Emissions} = \text{Magnesium produced (die casting/ recycling)} * \text{Baseline emissions factors}$$

The baseline emissions factors were calculated from an analysis of three years of historical data (2004, 2005 and 2006), according to the requirements of AM0065 /2/. They are:

	<i>Die Casting</i>	<i>Recycling</i>
U.S. facility (EFSF ₆ ,Mg)	0.0000914	0.000385
Canadian facility (EFSF ₆ ,Mg)	0.0000549	0.000684

$$\text{Project Emissions} = \text{Emissions from use of Novec-612}^{\text{TM}} + \text{Emissions from use of SF}_6$$

$$\text{Emissions from use of Novec-612}^{\text{TM}} = \text{Amount of Novec-612}^{\text{TM}} \text{ used} * \text{Novec-612}^{\text{TM}} \text{ GWP}$$

$$\text{Emissions from use of SF}_6 = \text{Amount of SF}_6 \text{ used} * \text{SF}_6 \text{ GWP}$$

	GWP
Novec-612 TM	2 830
SF ₆	23 900

$$\text{Emission Reduction} = \text{Baseline Emissions} - \text{Project Emissions}$$



3.6 Quality of Evidence to Determine Emission Reductions

All necessary documentation had been collected, referenced and aggregated and was accessible in hard-copy or electronic format. The following data and documents were verified to confirm the emission reduction during the period of 1 January, 2010 to 31 December, 2010.

Parameter	Documentation Verified
Amount of magnesium produced	Weight entered in report monthly /3/ /4/ /12/ /13/.
Amount of Novec-612™ used	Monthly update on Excel sheet by Facility Engineer from flow meter totalizer /3/ /4/ /10/ /11/.
Amount of SO ₂ used	Monthly update on Excel sheet by Facility Engineer from flow meter totalizer /3/ /4/ /10/ /11/.
Amount of SF ₆ used	Update of SF ₆ usage record when the empty bottle is replaced./10/ /11/ /12/.

The use of SO₂ as a cover gas requires special monitoring and safety precautions in order to conform to both local safety regulations and methodology AM0065. DNV has been able to verify that these requirements have been met. Table 4 provides the list of requirements and how they have been verified:

Table 4: List of Requirements and Method of Verification

Requirement	Method of Verification
Well-controlled SO ₂ concentration and flow rates with concentration typically 1% or less.	SO ₂ concentration charts were verified to confirm that the SO ₂ concentration was below 1% /10/.
An associated SO ₂ exhausting and abatement system to ensure SO ₂ emissions are in compliance with the local environmental regulations. Emissions from the facility to the ambient air should comply with the standards of each country or local agency.	The Meridian facility in Michigan emits a very small amount of SO ₂ and is not regulated. This was verified against the US EPA environment and compliance history online (ECHO) /14/.
If no local standards exist, the following value should be taken into account as a emission limit for SO ₂ concentration in the exhaust system: 1470 mg/m ³ (dry basis, 273 K, 101,325 kPa at an oxygen concentration of 6 %(v/v)).	The Canadian facility has submitted an Amended Certificate of approval from the Ministry of Environment, Ontario /8/. The SO ₂ concentration in the exhaust system was further verified by the Strathroy emissions report.



Requirement	Method of Verification
Precise gas mixing and delivery system using mass flow controllers (MFCs) or similarly accurate device and heated gas lines to SO ₂ .	Verified by visual inspection during visit to U.S. and Canadian facilities.
Gas cabinet or cylinder storage area with leak monitors and emergency ventilation system.	Verified by visual inspection that Gas Cabinet with leak monitors present at both facilities.
Redundant / back-up melt protection technology in case SO ₂ leak requires system shut-down and repair.	SF ₆ system is in place and can be used in the event of emergency. Both facilities also have a premixed bank of gas ready for use. Monitors shut the system down if they detect a concentration of 1 PPM SO ₂ , then auto switch to SF ₆ system.
Emergency response plan, training, and personal safety equipment.	The training manual and presentation for emergency response, training and safety was reviewed during the site visit /7/.
Back-up power / generator for gas mixing system and necessary controls, compressors, etc.	12-kW backup generator is in place and has an auto start function in the event of a power outage.

3.7 Management and Operational System

Meridian is responsible for monitoring, measurement and reporting activities. They maintain a collection system with proper equipment calibration and training of site employees, and submit monitoring reports to CCC.

The facility engineer from Meridian, Mr. Chuck Woodburn, is responsible for data collection, entering data into the Excel spreadsheet, making monthly and annual reports and archiving data. The calibration is conducted by McLean Scale Company Limited., Les Technologies Polycontrols Inc. and Sterling Scale Co. for both the U.S. and Canadian facilities. The facility engineer is also responsible for ensuring that calibration is carried out periodically. The data are then supplied to the project manager from CCC for developing the monitoring reports.

The procedure for the monitoring system, internal audit and management review has been established and followed by Mr. Woodburn. During the site visits, Mr. Woodburn and other Meridien staff were asked questions specific to GHG management, tracking, calibration, calculation and reporting, and were found to be competent to perform these tasks



4. CERTIFICATION STATEMENT

Det Norske Veritas (U.S.A), Inc. has performed the verification of the emission reductions that have been reported for the project “*Emission Reduction Protocol for Conversion of SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON*” for the period 1 January, 2010 to 31 December, 2010.

Meridian Magnesium Products is responsible for the collection of data in accordance with the validated monitoring plan and the reporting of GHG emission reductions from the project.

It is DNV’s responsibility to prepare an independent verification statement on the reported GHG emission reductions from the project.

DNV conducted the verification using the monitoring methodology AM0065 (Version 2.1), the VCS Project Document of 9 March, 2009 and the monitoring report dated 21 April, 2011. The verification included: i) checking whether the provisions of the monitoring methodology AM0065 and the monitoring plan were consistently and appropriately applied, and ii) the collection of evidence supporting the reported data.

DNV’s verification approach relies on an understanding of the risks associated with reporting of GHG emission data and the controls that are in place to mitigate these risks. DNV planned and performed the verification by obtaining evidence and other information and explanations that DNV considers necessary to give reasonable assurance that the reported GHG emission reductions are fairly stated.

In our opinion, the GHG emissions reductions for the project “*Emission Reduction Protocol for Conversion of SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON*,” for the period 1 January, 2010 to 31 December, 2010 are fairly stated in the monitoring report dated 21 April, 2011.

The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology AM0065 (Version 2.1) and the validated VCS PD of 9 March, 2009.

Det Norske Veritas (U.S.A.), Inc. is able to certify that the emission reductions from the project “*Emission Reduction Protocol for Conversion of SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON*” project during the period 1 January, 2010 to 31 December, 2010 equate to 182 257 tCO₂e (Michigan, U.S.) and 17 656 tCO₂e (Ontario, Canada).



REFERENCES

Documents provided that relate directly to the project:

- /1/ Climate Change Capital, Monitoring Report of Conversion of SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON, 21 April, 2011.
- /2/ Climate Change Capital, Monitoring Report of Conversion of SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON, March, 2010.
- /3/ Climate Change Capital, Meridian Magnesium Eaton Rapids emission reduction calculation worksheet. 21 April, 2011, (Meridian 2010 Monitoring Data_FINAL_42111.xls).
- /4/ Climate Change Capital, Meridian Magnesium Strathroy emission reduction calculation worksheet, 21 April, 2011, (Meridian 2010 Monitoring Data_FINAL_42111.xls).
- /5/ Calibration records for Eaton Rapids (2708_001.pdf, Remelt Scale Calibration Cert.pdf, scale claibration eaton rapids 1-10.pdf), 2010, Michigan.
- /6/ Calibration records for Strathroy (High St Plant May 2010_scale calibrations.pdf, calibration report p07-11 (2).pdf), 2010, Ontario.
- /7/ Meridian Magnesium, Presentation on emergency response plan, training, and personal safety equipment, 30 April, 2008.
- /8/ Ministry of the Environment, Application for approval (Air and Noise), Ontario, 14 May, 2002.
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- /10/ Gas use records for Eaton Rapids (Novec invoices 2010 MPA.pdf, Novec tote tracking sheet.pdf, 4785_001.pdf, 4785_017.pdf, 4785_037.pdf, SF6 recycling floor sheets.pdf, 4765_001.pdf, SO2 sheets 2010.pdf, Monthly Gas Usage_Eaton Rapids2010.xls, SF6 from Invoices and Inventory Eaton Rapids 2010.xls, Sf6 sheet die cast.pdf), 2010, Michigan.
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