



**Verified Carbon
Standard**

VERIFICATION REPORT FOR
CONVERSION OF SF₆ TO AN
ALTERNATIVE COVER GAS IN
MAGNESIUM PRODUCTION IN EATON
RAPIDS, MI AND STRATHROY, ON



Document Prepared by Agri-Waste Technology, Inc.

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Project ID	VCS 618
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Client	3Degrees Group, Inc.
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Summary:

This project involves the use of an alternative cover gas for the recycling, melting and casting of magnesium products at the facility in Michigan. The use of the alternative gas results in a net reduction in greenhouse gas emissions from the facility. Project emissions resulting from implementation of the project are considered in the evaluation of the emission reductions.

The objective of this engagement is the verification of the Conversion of SF6 to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON (VCS 618) against the CDM Methodology AM0065 Version 2.1, "Replacement of SF6 with alternate cover gas in the magnesium industry," for the purpose of registration with the Verified Carbon Standard. The verification is also based on ISO 14066, ISO 14065, and ISO 14064-3:2019, IAF MD6 and ANAB requirements, policies, and procedures. The criteria include the VCS Standard: VCS Version 4.5 (VCS Standard), VCS Program Guide, Version 4.4, and VCS Validation and Verification Manual, Version 3.2, October 19, 2016.

The monitoring period for this project is January 1, 2022 through December 31, 2023. The following greenhouse gases are included in the project: SF6, SO2, CO2, CH4, C2F6, C3F8, and perfluoro-2-methyl-3-pentanone.

The verification process required 19 findings to be resolved. The findings included 14 corrective action requests and 5 clarification requests. There are no uncertainties associated with the verification. A positive verification statement can be issued.

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1 INTRODUCTION

1.1 Objective

The objective of this engagement is the verification of the Conversion of SF₆ to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON (VCS 618) against the CDM Methodology AM0065 Version 2.1, “Replacement of SF₆ with alternate cover gas in the magnesium industry,” for the purpose of registration with the Verified Carbon Standard.

1.2 Scope and Criteria

The validation/verification scope is an up-front specification that indicates the type of validation/verification to be undertaken including types of GHGs and reporting period (verification only), baseline scenario, GHG project description (physical infrastructure, activities, technologies and processes), and GHG sources, sinks and reservoirs. The scope also includes the frequency of subsequent verifications.

a. Baseline Scenario:

The baseline scenario is the continued use of SF₆ as a cover gas for magnesium production.

b. Project Description: Physical Infrastructure, Activities, Technologies and Processes:

Operations include casting melted magnesium (ingots and recycled scrap parts) in die cast and melting furnace, recycling plant, refining furnace, die casting, ingot casting, cooling chamber, and mixing stations.

c. GHG sources, sinks and/or reservoirs:

- A. Source (B) – Emissions from cover gas mix to protect molten magnesium
- B. Source (P) – Emissions from replacement gases inserted as cover gas mix to protect molten magnesium
- C. Source (P) – Emissions from by-product of reaction between cover gas mix and molten magnesium

No Sinks or Reservoirs Identified

d. Types of GHGs: SF₆, SO₂, CO₂, CH₄, C₂F₆, C₃F₈, and perfluoro-2-methyl-3-pentanone

e. Reporting Period: 1/1/2022 – 12/31/2023

f. Frequency of Subsequent Verifications: Annually or biennially

- g. Criteria: The verification is based on the CDM Methodology AM0065 Version 2.1, “Replacement of SF6 with alternative cover gas in the magnesium industry,” as well as ISO 14066, ISO 14065, and ISO 14064-3:2019, IAF MD6 and ANAB requirements, policies, and procedures. The criteria include the VCS Standard: VCS Version 4.5 (VCS Standard), VCS Program Guide, Version 4.4, and VCS Validation and Verification Manual, Version 3.2, October 19, 2016.

1.3 Level of Assurance

This is a reasonable assurance engagement meaning that AWT will provide a reasonable, but not absolute, level of assurance that the GHG offset assertion is materially correct.

1.4 Summary Description of the Project

This project involves the use of an alternative cover gas in the manufacturing process of magnesium products. The alternative cover gas results in a reduction of greenhouse gas emissions from the facility. The baseline scenario for the project is defined as the continued use of SF6 as a cover gas. The project gases that replace SF6 are Novec-612, Noah and SO2.

The facility is owned by Meridian Magnesium Products of America and the Project Proponent is 3Degrees Group, Inc. The project is located at 2001 Industrial Drive, Eaton Rapids, Michigan 48827, USA. The GPS coordinates for the facility are Latitude, Longitude: 42° 31' N 84° 38' W.

Although the project name includes a facility in Ontario, Canada, no emission reductions from that facility were asserted or verified for this monitoring period. Therefore, this Canadian facility is considered outside of the project boundary.

The initial crediting period has a start date of 01/01/2007 and end date of 12/31/2016. The project in its first crediting period included credits generated from both the Michigan, US location and the Ontario, Canada location. In this reporting period of the second crediting period, the project has only included the Michigan, US location and is not registering credits for the activities in Ontario, Canada. The second crediting period for this project is valid from 01/01/2017 through 12/31/2026. The project meets the project commencement date and crediting period requirements of the applied methodology.

This project is eligible under the applied methodology because it meets all the criteria for a project to be deemed eligible. The following points should be noted with respect to the project's implementation status:

- Through onsite interviews, reviews of project implementation documentation and the monitoring report, no material discrepancies have been discovered. The site is operating as described in the monitoring report and required in the applied methodology.

- Verification activities confirmed implementation of the monitoring plan and completeness of monitoring, including the suitability of the implemented monitoring system (i.e., process and schedule for obtaining, recording, compiling and analyzing the monitored data and parameters).
- 3Degrees states within the monitoring report section 1.10 that the project has not participated or been rejected under any other GHG programs since validation or previous verification, which aligns with statements made during onsite interviews. AWT crosschecked publicly available registries and not find the project listed in any of them.
- 3Degrees states within the monitoring report section 1.11.2 that the project has not received or sought any other form of environmental credit or has become eligible to do so since validation or previous verification, which aligns with statements made during onsite interviews. AWT crosschecked publicly available registries and did not find the project listed in any of them.
- The GHG emission reductions or removals generated by the project are not actively, historically, or planning to be used in an emissions trading program or any other mechanism that includes GHG allowance trading, which aligns with statements made during onsite interviews.
- The project has implemented the activities that result in the SDG contributions described in the monitoring report. AWT reviewed the Sustainable Development Goals listed in the monitoring report and verified that the activities were implemented in reaching these goals.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Agri-Waste Technology, Inc. (AWT) follows a consistent methodology for all VCS project verifications. See Verification Plan in Appendix C.

2.2 Document Review

During the desk audit portion of the verification, documentation and calculations that were provided by 3Degrees Group, Inc. were reviewed to ensure completeness and that no material misstatements exist. To accomplish this task, AWT followed an Evidence Gathering Plan which is included in Appendix B. This plan identifies the various data sources and documentation available and how it was evaluated within the context of the verification process.

Per section 3.18.6 of the VCS Standard 4.5, “Prior to each validation/verification event, the project proponent shall communicate:

- 1) The project design and implementation, including the results of monitoring.
- 2) The risks, costs and benefits the project may bring to stakeholders.
- 3) The benefit sharing mechanism where relevant.
- 4) The ongoing FPIC process.
- 5) All relevant laws and regulations covering workers’ rights in the host country.
- 6) The process of VCS validation and verification and the validation/verification body’s site visit”.

The items above are included in the Monitoring Report developed by the Project Proponent.

As questions or misstatements were identified, a List of Findings was developed which communicated the potential problems to the project proponent and is included in Appendix A. The project proponent then responded and provided corrected documents, as needed.

Table 1: AWT’s review of the information and data according to the following.

GHG Source	Gas	Baseline or Project	Methods to Conduct Data/Document Checks	Summary of Information Analysed
Emissions from cover gas mix to protect molten magnesium	SF ₆	B	Review estimations and data provided by the project developer and compare them to the protocol requirements.	1. PDD 2. Observations from Site Audit 3. Raw data 4. Data Aggregation Spreadsheets 5. Emissions Calculation Tool 6. Equipment Specs
Emissions from replacements inserted as cover gas mix to protect molten magnesium	CO ₂ , HFC-13a, Perfluoro-2-methyl-3-pentanone, SF ₆	P	Review spreadsheet with emission calculations. Review raw data aggregations. Review QA/QC information regarding scales.	1. PDD 2. Baseline/ Project Schematic 3. Observations from Site Audit 4. Raw data 5. Data Aggregation Spreadsheets 6. Emissions Calculation Tool 7. Equipment Specs
Emissions from by-product of reaction between cover gas mix and molten magnesium	CH ₄ , C ₂ F ₆ , and C ₃ F ₈	P	Review spreadsheet with emission calculations. Review raw data aggregations.	1. PDD 2. Baseline/ Project Schematic 3. Observations from Site Audit

GHG Source	Gas	Baseline or Project	Methods to Conduct Data/Document Checks	Summary of Information Analysed
			Review QA/QC information regarding scales.	4. Raw data 5. Data Aggregation Spreadsheets 6. Emissions Calculation Tool 7. Equipment Specs

Site Audit

The Site Audit occurred on 10/01/2024. A checklist was utilized to ensure that all Methodology requirements were reviewed and/or included in the interviews with the staff. The site audit was attended to by Katie Cross and Chloe Lum from AWT, Inc. Sofia Barker from 3Degrees attended and participated in the site visit. Colin Chapman participated in the site visit as a representative of Meridian Magnesium Products of America.

Implementation of Evidence Gathering Plan

AWT incorporated the following strategy in the implementation of this Evidence Gathering Plan:

Social and Environmental Safeguards – Review of local, state, and federal laws regarding working conditions, discrimination, harassment, etc. Also review of the impacts of the project on the local environment and waterways.

Review of the Compliance, Permitting Information, and Emission Reduction Ownership – 100% of this documentation was reviewed.

Weight of Ingots Produced Plus any Dross and Scrap from Recycled Metal – 100% of the data was sampled and checked in terms of the aggregation of the amount of melted metal used in the recycling process.

Weight of Raw Material Input for Use in Diecasting – 100% of the data was sampled and checked in terms of the aggregation of the amount of melted metal used in the die cast process.

Quantity of Novec Cover Gas Used – The weight of the Novec tote is manually entered into spreadsheet each time it is filled. Review of the aggregation spreadsheet.

SO2 Consumption – monthly calculation based on difference in weight of gas cylinders before and after use.

SF6 Consumption – 100% of the data was sampled and checked in terms of the aggregation of the SF6 consumption.

Magnesium Produced – Annual calculation based on Michigan Plant magnesium sales records.

Emission Reduction Calculation – This calculation was 100% reviewed and a separate recalculation was made by the verification team.

Review of the Weigh Scale Calibrations – 100% of the weigh scale calibrations were checked and compared to the requirements.

Default Variables – The default variables were reviewed to ensure that they adequately reflect what is described in the protocol.

Review Data Checking Mechanisms – The operating effectiveness of the controls and project developer's data checking process were reviewed.

2.3 Interviews

As previously mentioned, Katie Cross interviewed Sofia Barker and Colin Chapman about the project components, project eligibility, project monitoring, data management, project emissions record keeping and any other pertinent topics. Sofia Barker from 3Degrees was only asked about topics pertaining to calculations and verification work while Colin Chapman was only asked to speak on topics pertaining to the facility and project operations. No major changes to the project activities were confirmed throughout the interview.

Please see section 2.5.1 regarding a Forward Action Request related to the identification and interview of an independent stakeholder (such as a relevant regulatory authority, local organization, industry association or nearby landowner) and the interview of this independent stakeholder in a manner that the stakeholder is reasonably assured to be outside the direct influence of the project entities.

2.4 Site Visits

The site inspection consisted of an interview between Katie Cross, Sofia Barker and Colin Chapman at Meridian MPA's Eaton Rapids facility on 01-October-2024. The site visit occurred in person and was not remote. This initial interview covered all topics necessary to ensure the project followed the methodology requirements. A tour of the Michigan facility was then made to ensure that the processes and procedures were understood by the verification staff. The tour of the Ontario facility was not necessary as the Ontario facility is not within the project boundary for this reporting period. A short closing meeting was held at the conclusion to discuss any remaining topics.

2.5 Resolution of Findings

A List of Findings was utilized to communicate the findings between the Verification Team and 3Degrees and Meridian staff. The issues were all resolved to the satisfaction of the verification team. One forward action request was needed. The List of Findings is included in Appendix A of this report. There were 19 issues on the log (14 corrective actions and 5 clarification requests), and all were closed prior to the conclusion of the verification activities.

2.5.1 Forward Action Requests

A forward action request is needed to meet the requirement to interview at least one potential independent stakeholder other than 3Degrees or Meridian by the verification body during the site visit. This will need to occur during the next verification.

2.6 Eligibility for Validation Activities

This project did not include any validation activities.

3 VALIDATION FINDINGS

3.1 Methodology Deviations

This project does not have any deviations from the methodology.

3.2 Project Description Deviations

No new project deviations were applied to this RP.

The following project description deviations are from the Monitoring Report for the current reporting period:

Global Warming Potential of SF6

In accordance with the VCS Standard v4.5 released in April 2021, 3Degrees has transitioned the source of global warming potential from IPCC's Fourth Assessment Report to the IPCC's Fifth Assessment Report (AR5). For SF6 this results in a change from a GWP of 22,800 to a GWP of 23,500. The use of the new GWP improves the accuracy of emission quantification within the project. This does not affect the applicability nor create a non-conformity within the applied methodology. This also does not affect the additionality of the project or appropriateness of the baseline scenario.

The project description deviations applied in previous monitoring reports and reporting periods are listed and described in the Monitoring Report.

3.3 New Project Activity Instances in Grouped Projects

This is not a grouped project.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes

☒ No

4 VERIFICATION FINDINGS

4.1 Project Details

Item	Evidence gathering activities, evidence checked, and assessment conclusion:
Audit history	3Degrees provides a complete listing of the project's audit history in the monitoring report. AWT reviewed documents from the previous verification period provided by 3Degrees and crosschecked with documents from the VCS website.
Double counting and participation under other GHG programs	3Degrees states within the monitoring report section 1.10 that the project has not participated or been rejected under any other GHG programs since validation or previous verification, which aligns with statements made during onsite interviews. AWT crosschecked publicly available registries and did not find the project listed in any of them.
No double claiming with emissions trading programs or binding emission limits	The GHG emission reductions or removals generated by the project are not actively, historically, or planning to be used in an emissions trading program or any other mechanism that includes GHG allowance trading, which aligns with statements made during onsite interviews.

No double claiming with other forms of environmental credit	3Degrees states within the monitoring report Section 1.11.2 that the project has not received or sought any other form of environmental credit or has become eligible to do so since validation or previous verification, which aligns with statements made during onsite interviews. AWT crosschecked publicly available registries and did not find the project listed in any of them.
Supply chain (scope 3) emissions double claiming	The project proponent is involved in buying or selling a project whose emissions footprint is changed by the project activities, which aligns with statements made during onsite interviews and with Section 1.11.3 of the Monitoring Report. AWT has reviewed the public statement that has been posted which can be found on Meridian's sustainability page.
Sustainable development contributions	The project contributes to SDGs 9 and 13 through reduction of greenhouse gas emissions through the continued replacement of SF6 gas with Novec in industrial magnesium processing as described in the monitoring report Section 1.1. The project recycles magnesium metal to produce new parts, thereby contributing to SDG 12. AWT has checked that the project activities resulting in sustainable development contributions have been implemented.
Additional information relevant to the project	There is not any commercially sensitive information disclosed in the monitoring report.

4.2 Safeguards and Stakeholder Engagement

4.2.1 Stakeholder Identification

Stakeholder identification and consultation has taken place between 3Degrees and Meridian Magnesium Products of America. The table below is applicable to the project:

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder identification	The stakeholders for this project include Meridian Magnesium Products of America (MPA) and 3Degrees Group Inc. as asserted in the Monitoring Report. It was asserted that the Stakeholders were identified at validation and have not changed since the validation.

Legal or customary tenure/access rights	This project is on private property and therefore this does not apply.
Stakeholder diversity and changes over time	There is no change in the diversity or identification of stakeholders for this project over time.
Expected changes in well-being	There is no change in the well-being of the stakeholders for this project.
Location of stakeholders	The stakeholder's location includes MPA which is located at the facility and 3Degrees Group Inc. that has locations worldwide.
Location of resources	There are no resources associated with this project.

4.2.2 Stakeholder Consultation and Ongoing Communication

Stakeholder consultation and ongoing communication is defined in Section 2.1.2 of the Monitoring Report. This section defines various communication events via email and in-person site visits between the two stakeholders identified.

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Ongoing consultation	Review of emails and observation during the site audit of a meeting between the stakeholders was observed. Ongoing consultation between the two stakeholders is evident.
Date(s) of stakeholder consultation	Emails on September 18, 2024 and November 5, 2024 were provided. In person meetings occurred on October 1, 2024 and during the verification site audit.

Communication of monitored results	Emails on September 18, 2024 and November 5, 2024 were provided. In person meetings occurred on October 1, 2024 and during the verification site audit.
Consultation records	Emails on September 18, 2024 and November 5, 2024 were provided. In person meetings occurred on October 1, 2024 and during the verification site audit.
Stakeholder input	Emails on September 18, 2024 and November 5, 2024 were provided. In person meetings occurred on October 1, 2024 and during the verification site audit.

4.2.3 Free, Prior, and Informed Consent

Project contracts between stakeholders were signed to provide evidence of FPIC.

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Consent	The contract between MPA and 3Degrees provided evidence that FPIC occurred.
Outcome of FPIC discussion	The contract was signed so FPIC was confirmed.

4.2.4 Grievance Redress Procedure

Meridian Products of America records any grievances received in an incident report, which is then accepted by the company and investigated by its HR department.

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Grievance received and steps taken to resolve the grievance including the outcomes of the resolution	No grievances were received or mentioned within the monitoring report Section 2.1.4.
Grievance redress procedure	The grievance redress procedure is accessible via the MPA Human Resources departments. AWT reviewed the MPA Employment Handbook as part of the verification activities.

4.2.5 Public Comments

Comments received	Actions taken by the project proponent	Evidence gathering activities, evidence checked, and assessment conclusion
No comments were received	No comments were received therefore no actions were required.	No comments were received.

4.2.6 Risks to Local Stakeholders and the Environment

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Risks to stakeholder participation	There is no risk to stakeholder wellbeing during the monitoring period, as the stakeholders identified are not negatively impacted by participation in the project..
Working conditions	A review of the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) establishment search portal shows no violations, complaints, or inspection findings for the project during the monitoring period. Additionally, clean and safe work conditions were observed during the site audit.
Safety of women and girls	A review of the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) establishment search portal shows no violations, complaints, or inspection findings for the project during the monitoring period. OSHA rules cover all people regardless of age, gender,

	or nationality. Additionally, safe work conditions were observed during the site audit.
Safety of minority and marginalized groups, including children	A review of the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) establishment search portal shows no violations, complaints, or inspection findings for the project during the monitoring period. OSHA rules cover all people regardless of age, gender, or nationality. Additionally, safe work conditions were observed during the site audit.
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	No risk identified. The project activity does not have any pollution-related risks which was confirmed during the site audit and the review of regulatory compliance databases and websites.

4.2.7 Respect for Human Rights and Equity

4.2.7.1 Labor and Work

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Discrimination and sexual harassment	MPA does not tolerate sexual harassment or discrimination, as stated in MPA's employee handbook. Employees who violate MPA's harassment policy are subject to disciplinary action. AWT reviewed MPA's employee handbook as part of verification activities.
Management experience	No new entity is involved in project design or implementation as confirmed through interviews during the site audit.
Gender equity in labor and work	MPA does not discriminate in employment opportunities or practices based on gender, according to the MPA employee handbook which was reviewed by AWT as part of verification activities.
Human trafficking, forced labor, and child labor	Meridian is committed to preventing slavery and human trafficking within its corporate activities. To ensure that Meridian's supply chain is free from forced labor and human trafficking, the company conducts supplier audits, supplier compliance checks, and staff training on a regular cadence. AWT reviewed Meridian's statement on slavery and human trafficking as well as confirmed the above statements through interviews during the site audit.

4.2.7.2 Human Rights

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Human rights	The project continues to recognize, respect, and promote the protection of the rights of LPs, LCs, and customary rights holders in line with applicable international human rights law, and the United Nations Declaration on the Rights of Indigenous Peoples and ILO Convention 169 on Indigenous and Tribal Peoples which was confirmed through interviews during the site audit.

4.2.7.3 Indigenous Peoples and Cultural Heritage

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Preservation and protection of cultural heritage	Cultural heritage is not affected by the project, as the project takes place in an industrial facility that was in operation before the project began.

4.2.7.4 Property Rights

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Disputes over rights to territories and resources	The project is located on private property and therefore no disputes over the rights to territories or resources exist.
Respect for property rights	The project is located on private property so rights are retained per ownership.

4.2.7.5 Benefit Sharing

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Summary of the benefit sharing plan	The project does not participate in benefit sharing, as it takes place on private property. This row is therefore not applicable to the project.
Benefit sharing during the monitoring period	The project does not participate in benefit sharing, as it takes place on private property. This row is therefore not applicable to the project.

4.2.8 Ecosystem Health

The project does not affect the risk to ecosystem health. Therefore, the table below is not applicable to the project.

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Impacts on biodiversity and ecosystems	No risk identified. There are no environmental resources or ecosystem within the project boundary and therefore this row does not apply to the project.
Soil degradation and soil erosion	No risk identified. <i>There are no environmental resources or ecosystem within the project boundary and therefore this row does not apply to the project.</i>
Water consumption and stress	No risk identified. <i>There are no environmental resources or ecosystem within the project boundary and therefore this row does not apply to the project.</i>
Usage of fertilizers	No risk identified. <i>There are no environmental resources or ecosystem within the project boundary and therefore this row does not apply to the project.</i>

4.2.8.1 Rare, Threatened, and Endangered species

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Species or habitat	The project activity occurs inside an existing magnesium production facility and therefore does not impact any rare, threatened, or endangered species or habitat.

4.2.8.2 Introduction of Species

Species introduced	Evidence gathering activities, evidence checked, and assessment conclusion
None	There is no planting or species introduction as a result of project activity therefore this section is not applicable to the project.

Existing invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
None	There is no existence of any invasive species in the project boundary area and therefore this section is not applicable to the project.

4.2.8.3 Ecosystem conversion

Item	Evidence gathering activities and evidence checked
Ecosystem conversion	This is not an ARR, ALM, WRC, or ACoGS project. Therefore, this section is not applicable to the project.

4.3 Accuracy of Reduction and Removal Calculations

Emission reductions were asserted by 3Degrees Group Inc. in their Monitoring Report and calculation spreadsheets. These emission reduction calculations were checked and re-calculated by Agri-Waste Technology, Inc. to ensure they are free of material errors. See Section 2.2 for a description of how AWT implemented the Evidence Gathering Plan.

The asserted emission reductions and associated VCU's (by 3Degrees) are verified to be materially correct.

There are several key parameters that are monitored to ensure compliance with the protocol. The following parameters were monitored during the verification period:

Parameter	Description	Data Source	Accuracy Check	Conformance to VCS Program rules
Weight of Ingots produced plus any dross and scrap from recycled metal	The weight in Kilograms of metal melted in the recycling process.	Electronic data sourced from the commercial weight scales and automatically recorded in the Plex system.	The raw data is analyzed to ensure proper aggregation, conversions, and that all accounts are accurate.	Yes
Weight of raw material used in diecasting	The weight in Kilograms of metal melted in the diecasting process.	Electronic data sourced from the commercial weight scales and automatically recorded in the Plex system.	The raw data is analyzed to ensure proper aggregation, conversions, and that all accounts are accurate.	Yes
Novec/Noah cover gas consumption	The weight of Novec/Noah gas that is used in Kilograms.	Electronic data sourced from the commercial weight scales manually entered into an Excel file.	The records are analyzed to ensure proper aggregation, conversions, and accurate transcription of data.	Yes
SF6 consumption	The weight of SF6 gas that is used in Kilograms.	Excel spreadsheet that contains the weight of gas cylinders prior to installation and when replaced with a new cylinder each month.	The records are analyzed to ensure proper aggregation, conversions, and accurate transcription of data.	Yes
SO2 Consumption	The weight of SO2 that is used in Kilograms.	There was no SO2 consumption therefore there is no data source.	There was no SO2 consumptions during the reporting period.	Yes

Parameter	Description	Data Source	Accuracy Check	Conformance to VCS Program rules
S02 leaks	Safety checks and infrastructure in place in case of S02 leakage.	There were no S02 leaks during the reporting period. The facility operations and safety practices was reviewed.	There were no S02 leaks during the reporting period.	Yes
Mg sales record data	The commercial magnesium production records	The facility's commercial records	The production records are used to crosscheck Mg production assertions.	Yes
Calibration documentation of weight scales	The calibration certificates of the weight scales used for metals and gas cylinders.	The certificates of calibration.	Ensuring that the calibration requirements of the protocol are met.	Yes

As required by the methodology and documented in the verification team's evidence gathering plan, a series of data checks were used to evaluate the assertions made by the project developer. These data checks are based on the requirements of the verification criteria listed in Section 1.2 of this report. The data checks include the following:

1. Tracing data in the verification report to its origin

This was performed for several of the data sets used in the verification including the weights of material used in diecasting and recycling as well as weights of gas cylinders used in determining SF6 and Novec gas consumption.

2. Looking at the processes for data compilation and collection

This process was reviewed and recalculated for all the raw data that was aggregated for the project. Data collection methodologies were also reviewed as part of both the site and desk audits. The site audit included extensive interviews about the exact process of data extraction from the data logger and presentation to 3Degrees for use in emission reduction calculations. The desk audit included an aggregation of the raw material used in diecasting and recycling operations. The desk audit also included a recalculation of the aggregation of the SF6 and Novec consumption totals. The verification activities checked for accurate usage of spreadsheet formulae, conversions and aggregations, and consistent use of data parameters.

3. Reviewing all GHG inventory design for GHG sources, sinks, and reservoirs and sampling procedures

This was completed through a thorough review of the emission reduction calculations that are based on the aggregated data. The emission reduction calculations were reviewed with respect to the conditions and requirements of the protocol.

4. Recalculating GHG emissions, project emissions, GHG reductions and GHG removal enhancements estimates to check original calculations

A recalculation of the emission reductions was conducted utilizing the aggregated recycling and diecasting input values to ensure the project developer's calculations are correct and in agreement with the requirements of the protocol. The appropriateness of the default values used in the emission reduction calculations were evaluated based upon the relevant methodologies. The recalculation was performed using an independent calculation tool developed using the tools presented in the verification criteria methodologies. Original GHG Emission Reduction Calculations are well described in the Monitoring Report.

5. Reviewing calculation methodologies used by the project developer for conformance with the protocol.

This was done through a thorough review of the project developer's calculation tool as well as the recalculation described in item 4 above. The Emission Reductions were calculated in accordance with the methodology and standard.

6. Reviewing scale calibration documentation

The QA/QC procedures and results were reviewed to ensure consistency with the protocol requirements. This evaluation included the weight scales used to weigh ingots within the facility.

A review of the asserted calculations was made to check for discrepancies, omissions, and misreporting in the quantification of the emission reductions. The latest calculation asserted by the project developer was used in this evaluation. The calculation reviews allowed for a reasonable level of assurance that there were no material misstatements in the final calculations or data aggregations, which followed the project developer's monitoring plan and applied methodologies. The following calculations can be found in more detail in the Monitoring Report.

Baseline Emissions:

$$BE_y = P_{Mg,Pj,y} * GWP_{SF6} * EF_{SF6,Mg}$$

Where:

BE_y = Baseline emissions in year y (tCO₂e/yr)

$EF_{SF6,Mg}$ = Baseline emission factor for the facility calculated as the minimum emission factor for 3 years of data (tSF₆/tMg)

$P_{Mg,Pj,y}$ = Annual amount of Mg products manufactured in the project scenario in the facility per year y

GWP_{SF6} = Global Warming Potential of SF₆ (tCO₂e/tSF₆)

Project Emissions:

$$PE_y = PE_{ALTGAS,y} + PE_{SF6,y} + \sum C_{CO2,Pj,y}$$

Where:

PE_y = Project emissions in year y (tCO₂e/yr)

$PE_{ALTGAS,y}$ = Project emissions from the use of HFC134a or Perfluoro-2-methyl-3- pentanone, if it is used as cover gas in project scenario – summing of all segments j – in year y (tCO₂e/yr)

$PE_{SF6,y}$ = Project emissions from the use of SF₆ – summing of all segments j - in year y (tCO₂e/yr)

$C_{CO2,Pj,y}$ = Consumption of CO₂ gas in project scenario for each segment per year (tCO₂/yr); shall be used when CO₂ is used as diluent in cover gas mix in the project scenario alone. No CO₂ is used in the cover gas mix in the project scenario so this value is 0.

Therefore the calculation for PE_y can be simplified as:

$$PE_y = PE_{ALTGAS,y} + PE_{SF6,y}$$

$PE_{ALTGAS,y}$ is calculated through Equation 10 of the methodology:

$$PE_{ALTGAS,y} = \sum_j \sum_k C_{ALTGAS,Pj,k,j,y} \times GWP_{ALTGAS} \times CF$$

Where:

$C_{ALT GAS, PJ, k, j, y}$ = Consumption of alternate gas in project scenario for each equipment k in each segment j per year (t/yr)

$GWP_{ALT GAS}$ = Global warming potential of alternate gas; in case of using Perfluoro-2- methyl-3-pentanone the value used is 1

CF = Conservative factor (default value of 1.26 for HFC134a and 2,830 for Perfluoro-2-methyl-3-pentanone)

$PE_{SF6, y}$ is calculated through Equations 11 and 12 of the methodology:

$$PE_{SF6, y} = \sum \sum C_{SF6, EM, PJ, k, j, y} \times GWP_{SF6}$$

Where:

$C_{SF6, EM, PJ, k, j, y}$ = SF_6 actually emitted in the project scenario in each equipment k of each segment j , per year y (t SF_6 /yr)

GWP_{SF6} = Global warming potential SF_6 (tCO₂e/t SF_6)

And:

$$C_{SF6, EM, PJ, k, j, y} = C_{SF6, CON, PJ, k, j, y} \times DF_{SF6, k, j} \times DI_{SF6, CON, PJ, k, j, y}$$

Where:

$C_{SF6, CON, PJ, k, j, y}$ = Total consumption of SF_6 in the project scenario in each equipment k of each segment j , per year y (t SF_6 /yr)

$DF_{SF6, k, j}$ = degradation factor of SF_6 that reacts with magnesium in the production process, assumed as 0.5

$DI_{SF6, CON, PJ, k, j, y}$ = A conservative factor portraying the data integrity of in each segment, per year (fraction)

4.4 Quality of Evidence to Determine Reductions and Removals

Data management for the project is handled by highly qualified individuals who have received training on the requirements of managing the system. 3Degrees is primarily responsible for the calculation of emission reduction credits and utilized formulas described in the verification criteria documents. The default values used in the formulas can be seen in the monitoring report provided by the project developer and includes citations of where the values originated. The training and qualifications of the individual who performed the calculations and wrote the monitoring report were appropriate to accomplish these tasks.

The project relies on electronic record keeping. The project data is collected and then stored electronically. The electronic data generated from these systems can be exported to external computers.

The scales and equipment used for monitoring the data needed for the emission reductions calculation received inspections, cleaning, field checks, and calibration as required by the methodology. The following table displays the quality control schedule performed on the equipment during the reporting period.

Table 2: Quality Control Measure for the Monitoring Equipment at Meridian Michigan facility.

<i>Equipment</i>	<i>QA/QC Requirements</i>	<i>Calibration Dates</i>
<i>Ohaus Defender 3000XtremeW SN:B829135528</i>	<i>Calibration twice per year</i>	<i>7/21/2021, 1/18/2022, 7/18/2022, 1/18/2023, 7/05/2023</i>
<i>Ohaus Defender 3000XtremeW SN:B530462718</i>	<i>Calibration twice per year</i>	<i>7/21/2021, 1/18/2022, 7/18/2022, 1/18/2023, 7/05/2023</i>

4.5 Non-Permanence Risk Analysis

This section is not relevant for this project as no non-permanence risks were identified.

5 VERIFICATION OPINION

5.1 Verification Summary

According to the verification activities, the project complies with the verification criteria for projects and their GHG emission reductions or removals set out in VCS Standard V4.5, including any qualifications or limitations. The project has been implemented in accordance with the project description and subsequently validated variations.

Based on the information provided to AWT and through the verification activities performed, AWT can verify with a reasonable level of assurance that:

- a) There are no existing material non-conformances or misstatements in the reported data.
- b) In compliance with the contents of:
 - a. VCS Standard: VCS Version 4.5, 21 December 2022 (VCS Standard)
 - b. VCS Program Guide, Version 4.4, 22 June 2022
 - c. VCS Validation and Verification Manual, Version 3.2, 19 October 2016
 - d. Clean Development Mechanism (CDM) methodology AM0065 “Replacement of SF6 with alternate cover gas in the magnesium industry” Version 2.1
 - e. ISO 146064-3:2019 Guidance for the verification of asserted GHG reductions
- c) A VCS Verification Deed of Representation issued by Agri-Waste Technology, Inc. for the Conversion of SF6 to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, Mi and Strathroy, On Project for project activity during the period of 1/1/2022 through 12/31/2023 is included in Appendix D.

5.2 Verification Conclusion

In conclusion, with reasonable assurance, the net GHG emission reduction by the project during the period of 01-January-2022 to 31-December-2023 are equivalent to 222,721 tCO₂e.

Verification period: From 01-January-2022 to 31-December-2023

Verified GHG emission reductions and carbon dioxide removals in the above verification period:

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCU (tCO ₂ e)	Removal VCU (tCO ₂ e)	Total VCUs (tCO ₂ e)
01-Jan-2022 to 31-Dec-2022	213,685	102,409	0	111,276	0	111,276
01-Jan-2023 to 31-Dec-2023	218,339	106,894	0	111,445	0	111,445
Total	432,024	209,303	0	222,721	0	222,721

5.3 Ex-ante vs Ex-post ERR Comparison

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
01-Jan-2022 to 31-Dec-2022	196,000	111,276	-43.2%	The decrease in emissions reductions was a result of excluding the Ontario facility from credit generation this reporting period.
01-Jan-2023 to 31-Dec-2023	196,000	111,445	-43.1%	The decrease in emissions reductions was a result of excluding the Ontario facility from credit generation this reporting period.
Total	392,000	222,721	-43.2%	The decrease in emissions reductions was a result of excluding the Ontario facility from credit generation this reporting period.

APPENDIX A: LIST OF FINDINGS

List of Findings

Project Name: *Conversion of SF6 To An Alternative Cover Gas In Magnesium Production In Eaton Rapids, MI (VCS618)*

Reporting Period: *1/1/2022 – 12/31/2023*

Verification Team Members: *Hal Langenbach, Katie Cross, Chloe Lum*

#	Issue	PD Response	Resolution	Status (Open or Closed)	Reference Citation	Materiality Check
1	Corrective Action Request: In file “Novec Tracking 2022-2023” the values for Novec tote #SI21083662 on 6/22/22 and 7/5/22 do not match the handwritten log, why?	The file now matches the handwritten logs for 6/22/22 and 7/5/22.	The data aggregation now matches the handwritten logs.	Closed	Section III. Monitoring Methodology	None
2	Corrective Action Request: In file “Novec Tracking 2022-2023” the recycling value for Novec tote #SI21083197 on 12/12/22 shows zero, why?	The recycling value for the 12/12/2022 value has been corrected.	The data aggregation now matches the handwritten logs.	Closed	Section III. Monitoring Methodology	None
3	Corrective Action Request: In file “Novec Tracking 2022-2023” the plant value for Novec tote #SI30398 on 6/26/23 does not equal the difference between 6/19/23 recycle and 6/26/23 plant values, why?	The plant value for 6/26/23 now equals the difference between the 6/19/23 and 6/26/23 values. The plant value for 6/26/23 in the v2 Novec Tracking file is referencing the correct cells.	Reviewed and accepted.	Closed	Section III. Monitoring Methodology	None

#	Issue	PD Response	Resolution	Status (Open or Closed)	Reference Citation	Materiality Check
	UPDATE (10/14/2024): The cell still references an incorrect cell.	The total amount of Novec used from the tote #S130398 equals the difference between the starting and ending values, indicating that the math done to quantify the Novec usage on 6/26/23 by the plant is correct.				
4	Clarification Request: In file "Novec Tracking 2022-2023" for Novec tote #SI1693128 on 8/21/23 for the recycle value says 'NOAH', what does this mean?	According to the site, the 'NOAH' note indicates that NOAH gas is used for all following recycling operations. There is no gas usage during that 8/21/23 recycling reading. The 8/28/23-9/18/23 weights for the die cast operations use the remaining Novec in the tote.	Reviewed and accepted	Closed	Section III. Monitoring Methodology	None
5	Corrective Action Request: In file "Novec Tracking 2022-2023" the NOAH totes are "Calculated under assumption that there is a new tote. Plant values have been manually zeroed out." Is the tote not fully re-filled to the 667 lbs?	Yes, the totes are fully re-filled. The values have been updated to reflect this in the v2 file.	The tote values now reflect the tote being refilled once empty	Closed	Section III. Monitoring Methodology	None

#	Issue	PD Response	Resolution	Status (Open or Closed)	Reference Citation	Materiality Check
6	Corrective Action Request: In file “Novec Tracking 2022-2023” the NOAH tote value for 11/27/2023 does not match the handwritten log, why?	The file now matches the handwritten log for 11/27/2023.	The data aggregation now matches the handwritten logs.	Closed	Section III. Monitoring Methodology	None
7	Corrective Action Request: In file “Remelt 2022” the values are not consistent throughout the months, ex. Tab March cell G24 does not match Tab December cell G24, why? This also occurs in the 2023 file.	Human error in the transcription of the data resulted in data discrepancy. The lowest of the different values shown for each month with discrepancies was used in the calculations for conservativeness.	The lowest of the monthly values was used in the ER Calculations leading to more conservative ER Totals.	Closed	Section III. Monitoring Methodology	None
8	Corrective Action Request: In file, “MPA Sf6 gas bottle record 2022-2023” for the SF6 Used Diecast 2022-2023, the 11/13/2023 data is incorrectly transcribed. Please correct.	The transcription error has been corrected in the v2 file.	The missing data point has been added.	Closed	Section III. Monitoring Methodology	None
9	Corrective Action Request: In file, “MPA Sf6 gas bottle record 2022-2023” for both the used recycling and diecast ‘Gas Remaining in Cylinder’, values do not	The “Gas Remaining in Cylinder” column reflects the difference between the “Weight After” column (weight post-usage) and the “TARE WEIGHT” column (empty cylinder weight).	The excel sheet has accurate subtraction, the math in the handwritten logs is not always correct.	Closed	Section III. Monitoring Methodology	None

#	Issue	PD Response	Resolution	Status (Open or Closed)	Reference Citation	Materiality Check
	match the handwritten logs, why?	These weights are direct measurements, whereas the “Gas Remaining in Cylinder” column is calculated by the employee recording the weights. The difference quantified by Excel reflects the correct math to derive the value, whereas the handwritten logs for this column of data are subject to human error.				
10	Corrective Action Request: In file, “MPA Sf6 gas bottle record 2022-2023” there is a transcription error for SF6 Used Recycling on 1/31/22. Please double check all transcriptions.	The transcription has been corrected. All transcriptions have been reviewed and revised as necessary. All subsequent calculations have been updated as well in each respective v2 file.	The data aggregation now matches the handwritten logs.	Closed	Section III. Monitoring Methodology	None
11	Clarification Request: Is data missing from file “Diecast bottle log” why are there no records between 01/10/22 and 08/22/23?	There are no records between 1/10/22 and 8/22/23 because no SF6 was used during that period.	Reviewed and accepted	Closed	Section III. Monitoring Methodology	None
12	Clarification Request: Why is file “Scale calibrations 2022” missing the Truck Scale Calibration Data?	The truck scale calibration data is missing because the truck scale was down.	The weight scales used to measure project	Closed	Section III. Monitoring Methodology	None

#	Issue	PD Response	Resolution	Status (Open or Closed)	Reference Citation	Materiality Check
	UPDATE (10/14/2024): It is also missing from the 7/21/2021 calibration, why?	Pending clarification from the site. No project calculations used measurements from the truck scale. Only weight scales inside the facility, designed to weigh pallets, were used to measure project parameters like metal melted. The lack of calibration records is therefore not relevant.	parameters follow the methodology for calibration requirements.			
13	Corrective Action Request: Please provide valid scale calibrations prior to 7/18/2022.	2021 scale calibrations have been provided.	A calibration from 7/21/21 has been provided.	Closed	Section III. Monitoring Methodology	None
14	Corrective Action Request: The Service orders for the scales state there should be semi-annual inspection, why are there only annual inspections?	The scales are inspected semi-annually. The missing records have been requested from the site.	The calibration documentation has been provided.	Closed	Section III. Monitoring Methodology	None
15	Corrective Action Request: Please provide a file like "Parts shipped 2023" for 2022.	Please disregard the file "Parts Shipped 2023," as it does not include any weight data. Please see the file "2023 shipper info" for all	The documentation has been provided.	Closed	Section III. Monitoring Methodology	None

#	Issue	PD Response	Resolution	Status (Open or Closed)	Reference Citation	Materiality Check
	UPDATE (10/15/2024): Please provide a file like “2023 shipper info” for 2022.	orders shipped and their associated net weights. The “2022 shipper info” file is in the Parts Shipped folder. It has been sent separately via email as well.				
16	Corrective Action Request: File “2022-2023 shipper info” is missing many of the line items displayed in pdf “Parts shipped 2023” for example, part # 5-030-001-031 shipped out 243,000 pieces in 12/2023 in the pdf, but this is not shown in the excel file. Please correct.	The excel file “2023 shipper info” has been provided. It lists the net weight of all parts shipped. The total tonnes listed in this sheet was input into the MR to replace the previous value.	An updated shipping file was provided.	Closed	Section III. Monitoring Methodology	None
17	Clarification Request: In file “2022-2023 shipper info”, where is the raw weight/part data? UPDATE (10/15/2024): What unit is column AC? Your current sheet states approx. 23,000,000 lbs of products	With the provision of the file ”2023 shipper info,” please disregard the 2022-2023 shipper info file. The 2023 shipper info file includes the net weight of each line item in column AC. Column AC is in pounds. The weight of parts shipped (23 million lbs) is approximately	Reviewed and Accepted	Closed	Section III. Monitoring Methodology	None

#	Issue	PD Response	Resolution	Status (Open or Closed)	Reference Citation	Materiality Check
	were sold, but nearly 90,000,000 lbs of metal was melted in 2023.	half the weight of the die cast metal melted (47 million lbs melted in die cast in 2023) because the Parts Shipped file tracks only the finished parts produced through the die cast process although the total metal melted value includes metal that is sold as scrap after the production process. According to the site, kilograms of sales from the die cast facility include both sales of finished parts which account for approximately half of the total and the sale of scrap sent to the recycling plant which also accounts for about half of the total. The sale of scrap is not tracked in the Parts Shipped files; only sales of finished parts are tracked. Scrap metal is recycled internally through the facility's remelt process. See the Comments section of the parameter box for				

#	Issue	PD Response	Resolution	Status (Open or Closed)	Reference Citation	Materiality Check
		Magnesium Sales Reports for this explanation.				
18	Corrective Action Request: In file “Novec Tracking 2022-2023” are the dates for cells C1515 and C1516 correct?	The dates have been corrected and the calculations have been adjusted accordingly.	An updated files with the corrected dates was provided.	Closed	Section III. Monitoring Methodology	None
19	Clarification Request: In file “2023 shipper info” why are there items with quantity shipped but zero net weight? Ex. Column Invoice No, #MPA98818, MPA99990, and #MPA94623	This is MPA’s internal tracking and accounting system. It tracks information beyond what is relevant to the carbon calculations. The parts with zero net weights are not parts that are accounted for as part of the calculations.	Reviewed and Accepted	Closed	Section III. Monitoring Methodology	None

**All Reference Citations refer to CDM AM0065 / Version 02.1*

APPENDIX B: EVIDENCE GATHERING PLAN

Client: 3Degrees Group, LLC

Project Name: Conversion of SF6 To An Alternative Cover Gas In Magnesium

Production In Eaton Rapids, MI and Strathroy, ON (VCS 618)

Date: 07/09/2024

Revised: 12/16/2024

Written By: Hal Langenbach

The evidence gathering plan is based on risks or material concerns that could potentially lead to errors, omissions, and/or misrepresentations that are identified throughout the verification process and is amended accordingly. This plan is used in developing the validation/verification plan and is approved by the team leader. The following elements are included in the evidence gathering plan:

Level of Assurance

Verification

This is a reasonable assurance engagement meaning that AWT will provide a reasonable, but not absolute, level of assurance that the GHG offset assertion is materially correct.

Validation/Verification Scope

The verification scope is an up-front specification that indicates the type of validation/verification to be undertaken including types of GHGs, reporting period (verification only), crediting period, GHG project and baseline scenarios, physical infrastructure, activities, technologies, and processes of the GHG project, and GHG sources, sinks and reservoirs. The verification scope also includes the frequency of subsequent verifications.

- A. Baseline Scenario: Continued use of SF6 as a cover gas for magnesium production.
- B. Physical Infrastructure: melting furnace, refining furnace, die casting, ingot casting, cooling chamber, and mixing stations.
- C. GHG sources, sinks and/or reservoirs:
 - Emissions from cover gas mix to protect molten magnesium (B)
 - Emissions from replacements inserted as cover gas mix to protect molten magnesium (B, P)
 - Emissions from by-product of reaction between cover gas mix and molten magnesium (P)No sinks or reservoirs identified.
- D. Types of GHGs: SF6, CO2 SO2, CH4, C2F6, C3F8, and Perfluoro-2-methyl-3-pentanone
- E. Reporting Period: 1/1/2022 - 12/31/2023
- F. Crediting Period: 1/1/2017 – 12/31/2026
- G. Frequency of Subsequent Verifications: Every 2 years

Verification Criteria

AWT will perform the verification based on the CDM Methodology AM0065 Version 2.1, “Replacement of SF6 with alternative cover gas in the magnesium industry,” as well as ISO 14066, ISO 14065, and ISO 14064-3:2019, IAF MD6 and ANAB requirements, policies, and procedures. The criteria include the VCS Standard Version 4.5 (VCS Standard), VCS Program Guide, Version 4.4, and VCS Validation and Verification Manual, Version 3.2, October 19, 2016.

Risks of Potential Errors, Omissions or Misrepresentations

AWT assesses risks of potential errors, omissions or misrepresentations and reports relative magnitudes in this section. The risks are utilized to inform the sampling intensity.

Source	Baseline or Project	Gas	Type of Risk	Relative Magnitude to ER assertion	Notes
Emissions from cover gas mix to protect molten magnesium	B	SF6	Inherent Controlled Detectable	Low Low Low	Major source of emissions in the baseline.
Emissions from replacement gas inserted as cover gas mix to protect molten magnesium	P	CO ₂ , Perfluoro-2-methyl-3-pentanone, SF ₆	Inherent Controlled Detectable	Low Low Low	Major source of emissions in the Project.
Emissions from by-product of reaction between cover gas mix and molten magnesium	P	CH ₄ , C ₂ F ₆ , and C ₃ F ₈	Inherent Controlled Detectable	Low Low Low	Source of emissions in the Project.

Methodologies for Determining Representative Samples

AWT determines representative samples based on the requirements of the program and specific protocol.

Absent specific requirements, AWT evaluates the specific project including data uncertainties, QA/QC procedures and methods for data collection to determine representative sampling intensity. Unless more rigorous sampling is deemed appropriate by the team leader, data that is automated and not subsequently manually transcribed is sampled such that automated calculations/aggregations are checked for a minimum of one data point per data set to ensure software is set up correctly. If material anomalies are observed, a corrective action request would be issued. Where data is manually transcribed, raw data utilized for GHG emission reduction calculations is sampled at a rate of the equivalent of 10% for all relevant data sets. Where spreadsheets are utilized, all formulas are reviewed to ensure accuracy. Should the field audit reveal inconsistencies in the project documentation and the implementation of the project in terms of data collection and management, the minimum sampling rate shall be doubled. Should the desk review of data and calculation procedures uncover material errors, the minimum sampling rate of desk reviewable data shall also be doubled. If program requirements set forth detailed sampling requirements that are more rigorous than the internal requirements listed above, the program requirements take precedence.

Amount and type of evidence (qualitative and quantitative) necessary to achieve the agreed level of assurance (if applicable)

AWT will examine the GHG data and information to develop an accurate account of the project's GHG assertion. AWT will determine whether the project conforms to the validation/verification criteria and any discrepancies will be addressed by the client or responsible party. AWT will then examine whether the validation/verification evidence collected supports the GHG assertion, by evaluating the collected evidence in the assessments of controls, GHG data and information and applicable GHG program criteria to support the GHG assertion. It will then be determined whether the GHG assertion is without material discrepancies and that AWT provided the level of assurance (if applicable) agreed upon in the original contract. Any modifications to the GHG assertion will then be evaluated, so that all evidence supports its findings. Specific data/information to be provided by the client or responsible party include but are not limited to:

- Description of the procedures and systems used to collect, document and process GHG emissions data at the facility level
- Description of quality control procedures applied (internal audits, comparison with last year's data, recalculation by a second person, etc.)
- Listing of responsible individuals for collecting GHG emissions data at each site and at the corporate level, if applicable
- Information on uncertainties, qualitative and if available, quantitative

AWT will review the information and data according to the following.

GHG Source	Gas	Baseline or Project	Methods to Conduct Data/Document Checks	Summary of Information Analyzed
Emissions from cover gas mix to protect molten magnesium	SF ₆	B	Review estimations and data provided by the project developer and compare them to the protocol requirements.	1. PDD 2. Observations from Site Audit 3. Raw data 4. Data Aggregation Spreadsheets 5. Emissions Calculation Tool 6. Equipment Specs
Emissions from replacements inserted as cover gas mix to protect molten magnesium	CO ₂ , HFC-13a, Perfluoro-2-methyl-3-pentanone, SF ₆	P	Review spreadsheet with emission calculations. Review raw data aggregations.	1. PDD 2. Baseline/ Project Schematic 3. Observations from Site Audit 4. Raw data 5. Data Aggregation Spreadsheets 6. Emissions Calculation Tool 7. Equipment Specs
Emissions from by-product of reaction between cover gas mix and molten magnesium	CH ₄ , C ₂ F ₆ , and C ₃ F ₈	P	Review spreadsheet with emission calculations. Review raw data aggregations.	1. PDD 2. Baseline/ Project Schematic 3. Observations from Site Audit 4. Raw data 5. Data Aggregation Spreadsheets 6. Emissions Calculation Tool 7. Equipment Specs

Site Audit

The Site Audit will commence according to the project site audit checklist. The checklist contains protocol specific questions regarding eligibility, monitoring, and record keeping requirements. Interviews with key staff will also be held. The lead verifier will also take relevant photos of the site for reference during the desk audit. No credits are asserted for the Ontario facility for this reporting period. Therefore, the site audit only includes the Michigan Facility.

Implementation of Evidence Gathering Plan

AWT incorporated the following strategy in the implementation of this Evidence Gathering Plan:

Social and Environmental Safeguards – Review of local, state, and federal laws regarding working conditions, discrimination, harassment, etc. Also review of the impacts of the project on the local environment and waterways.

Review of the Compliance, Permitting Information, and Emission Reduction Ownership – 100% of this documentation was reviewed.

Weight of Ingots Produced Plus any Dross and Scrap from Recycled Metal – 100% of the data was sampled and checked in terms of the aggregation of the amount of melted metal used in the recycling process.

Weight of Raw Material Input for Use in Diecasting – 100% of the data was sampled and checked in terms of the aggregation of the amount of melted metal used in the die cast process.

Quantity of Novec Cover Gas Used – The weight of the Novec tote is manually entered into spreadsheet each time it is filled. Review of the aggregation spreadsheet.

SO₂ Consumption – monthly calculation based on difference in weight of gas cylinders before and after use.

SO₂ Leakage – 100% of the ambient air monitoring data was sampled and checked in terms of the SO₂ leakage.

SF₆ Consumption – 100% of the data was sampled and checked in terms of the aggregation of the SF₆ consumption.

Magnesium Produced – Annual calculation based on Michigan Plant magnesium sales records.

Emission Reduction Calculation – This calculation was 100% reviewed and a separate recalculation was made by the verification team.

Review of the Weigh Scale Calibrations – 100% of the weigh scale calibrations were checked and compared to the requirements.

Default Variables – The default variables were reviewed to ensure that they adequately reflect what is described in the protocol.

Review Data Checking Mechanisms – The operating effectiveness of the controls and project developer’s data checking process were reviewed.

APPENDIX C: VERIFICATION PLAN

Client: 3Degrees Group Inc.

Project Name: Conversion of SF6 To An Alternative Cover Gas In Magnesium

Production In Eaton Rapids, MI and Strathroy, ON (VCS618)

Date: 7/9/2024

Revised: 10/10/2024

Written By: Hal Langenbach

Preliminary Document Checklist

☒ Internal Project Description Document Signed

☒ Internal Conflict of Interest Signed

☒ Impartiality Signed

☒ Conflict of Interest Approved

☒ Strategic Analysis Completed

☒ Risk Assessment Completed

☒ Evidence Gathering Plan Completed

Level of Assurance*Verification*

This is a reasonable assurance engagement meaning that AWT will provide a reasonable, but not absolute, level of assurance that the GHG offset assertion is materially correct.

Verification Objectives

The objective of this engagement is the verification of the *Conversion of SF6 to an Alternative Cover Gas in Magnesium Production in Eaton Rapids, MI and Strathroy, ON (VCS 618)* against the CBM Methodology AM0065 Version 2.1, “Replacement of SF6 with alternate cover gas in the magnesium industry,” for the purpose of registration with the *Verified Carbon Standard*.

Verification

AWT will provide an assessment of the integrity of the asserted offsets to the agreed upon level of assurance.

Verification Criteria

AWT will preform verification of the following project(s) based on the CDM Methodology AM0065 Version 2.1, “Replacement of SF6 with alternative cover gas in the magnesium industry,” as well as ISO 14066, ISO 14065, and ISO 14064-3:2019, IAF MD6 and ANAB requirements, policies, and procedures. The criteria include the VCS

Standard: VCS Version 4.7 (VCS Standard), VCS Program Guide, Version 4.7, and VCS Validation and Verification Manual, Version 3.2, October 19, 2016.

Validation/Verification Scope

The validation/verification scope is an up-front specification that indicates the type of validation/verification to be undertaken including types of GHGs and reporting period (verification only), baseline scenario, GHG project description (physical infrastructure, activities, technologies and processes), and GHG sources, sinks and reservoirs. The scope also includes the frequency of subsequent verifications.

- a. Baseline Scenario:
The baseline scenario is the continued use of SF6 as a cover gas for magnesium production.
- b. Project Description: Physical Infrastructure, Activities, Technologies and Processes:
Operations include casting melted magnesium ingots in die cast and melting furnace, refining furnace, die casting, ingot casting, cooling chamber, and mixing stations.
- c. GHG sources, sinks and/or reservoirs:
 - A. Source (B) – Emissions from cover gas mix to protect molten magnesium
 - B. Source (P) – Emissions from replacement gases inserted as cover gas mix to protect molten magnesium
 - C. Source (P) – Emissions from by-product of reaction between cover gas mix and molten magnesiumNo Sinks or Reservoirs Identified
- d. Types of GHGs:
SF6, SO2, and perfluoro-2-methyl-3-pentanone
- e. Reporting Period:
1/1/2022 – 12/31/2023
- f. Frequency of Subsequent Verifications:
Every 2 years

Materiality

Based on the full context within which the information is presented, AWT will assess any errors, omissions and/or misrepresentations and make requests to 3Degrees Group Inc. for additional information, clarifications or corrective actions. Any discrepancy resulting in a material errors, will result in a corrective action request. The required materiality shall be established based on the requirements of the GHG program or in the absence of

GHG program requirements, best professional judgement considering objectives, level of assurance (if applicable), criteria and scope.

Based on the Verified Carbon Standard's methodology to determine the materiality threshold, the following will apply:

- For projects asserting less than or equal to 300,000 tCO₂e per year the materiality threshold is 5%.
- For projects asserting more than 300,000 tCO₂e per year, the materiality threshold is 1%.

Verification Activities

Agri-Waste Technology, Inc. (AWT) follows a consistent methodology for all VCS - project verifications.

1. Participant selects Validator/Verifier. The V/V director performs pre-engagement review and assigns team leader based on sector and documents these activities in the internal project description document.
2. Team leader forms verification team and negotiates/executes subcontractor contracts (if applicable).
3. The contract can be drafted at this point but cannot be fully executed until the COI evaluation has been completed by AWT. Team leader sends contract to client for signature.
4. Team Leader and COI Auditor prepare Internal Conflict of Interest and Impartiality documents and obtain signatures from all team members. Team Leader and COI Auditor prepare Notice of Verification Services (NOVS) form and submit it to VERRA if a site audit is required a minimum of 15 business days prior to holding the kick-off meeting.
5. The project proponent submits its VERRA project description, monitoring plan and report, proof of title, validation report (if available), results of previous assessments (if applicable) and other information required to AWT.
6. The team leader executes the contract. It should be noted that steps 6-11 are all occurring somewhat simultaneously.
7. Team leader reviews preliminary documentation and any results of previous assessments (if applicable) from aggregator or project owner and discuss goals and constraints. This review will include determining the following:
 - Nature, scale and complexity of the verification activity to be undertaken on the client's behalf

- Confidence in the responsible party's GHG information and assertion
- Completeness of the responsible party's GHG information and assertion and the eligibility of the responsible party to participate in the GHG program

As part of the initial review of the project documentation, the Team Leader or Team Member under the direction of the Team Leader performs the Strategic Analysis.

Previous Assessments--If a previous verification has been completed for the client, then AWT would request a copy of the report to review it and make sure that all relevant information is addressed appropriately. Reviewing these reports helps to eliminate any duplicate site/desk audits and includes a review of the conclusion, so that it can be carried forward to the current report appropriately.

8. Team Leader assesses the controls for sources of potential errors, omissions and misrepresentations, while taking the following into account:
 - Selection and management of the GHG data and information
 - Risk of a material discrepancy occurring
 - Processes for collecting, processing, consolidating and reporting GHG data and information
 - Risk that the controls of the organization or GHG project will not prevent or detect a material discrepancy
 - Risk that the verifier will not detect any material discrepancy that has not been corrected by the controls of the organization or GHG project

As part of the assessment of controls, the Team Leader or Team Member under the direction of the Team Leader completes the Risk Assessment Form that is reviewed by the internal peer reviewer.

9. Team Leader prepares or supervises the preparation of the evidence gathering plan.
10. Team Leader prepares or supervises the preparation of the verification plan and submits it to the client for signature.
11. Team Leader holds the kick-off meeting with the client (minimum 15 days after submittal of NOVS) and requests additional information/clarification and amends evidence gathering plan if any new risks or material concerns that could potentially lead to error, omissions, or misrepresentations are identified.
12. Schedule and perform site visit/field audit (if required) and amend evidence gathering plan if any new risks or material concerns that could potentially lead to errors,

omissions or misrepresentations are identified.

13. Complete desk audit, compile site visit information and amend evidence gathering plan if any new risks or material concerns that could potentially lead to errors, omissions, or misrepresentations are identified.
14. Team Leader then assesses the claim based on the procedures set forth in the VERRA Program Guide and VERRA Standard. and produces:

Verification-Periodic independent review of emissions of GHG that occurred as a result of registered VERRA project.

1. **Verification Components:**

- Verifies projects documentations are as per requirement
- Conduct site audits and collect outside data to determine reductions in emissions
- Identify and inform the project participants of any concerns related to conformity
- Provides a verification report to the project participants and EB. The report is made publicly available.
- Certifies in writing the VCU's for the specific time period

2. **Verification Report**-Complete Verification Report Template to include list of diversions from original evidence gathering plan.

3. **Verification Deed**-Complete Verification Deed

15. Internal Peer Reviewer reviews the verification statement, verification report, and accompanying documents to confirm that all verification activities have been completed, whether the GHG assertion is free of material discrepancy and whether the verification activities provide the agreed upon level of assurance. The Internal Project Technical Review is utilized to document the internal review. The internal peer reviewer signs the Internal Project Technical Review form, the verification report, and the verification statement.
16. Send validation/verification report(s) to client for approval.
17. Address questions and contestations.
18. The project proponent submits the validation/verification report to the VERRA Registry operator.

19. Recordkeeping--AWT will keep all documents and records used for the validation/verification project in a secure and retrievable manner for at least 2 years after the end of the project-crediting period.

Verification Timeline

Please note that the schedule listed is tentative and dependent on obtaining the appropriate information from the project developer. If the schedule changes during the project activities, the changes will be communicated to the project developer. This verification plan will be updated at the end of the project to reflect all schedule changes.

- | | |
|--|------------|
| 1. Kickoff Meeting | 7/17/2024 |
| 2. Field Audit | 10/1/2024 |
| 3. Draft Validation/Verification Report/Statement to Client | 11/21/2024 |
| 4. Upload Validation/Verification Report/Statement to Registry | 12/1/2024 |

Complaints, Appeals and Disputes Process

AWT has a defined process for handling complaints, appeals and disputes which is located on our website (<http://agriwaste.com/services/carbon-offsets/verification/>) under “Documents”.

VB Team Assigned to Project

Role	Name	Email	Phone
Team Leader (Lead Verifier)	Hal Langenbach	hal@agriwaste.com	919-859-0669
Technical Expert	Hal Langenbach	hal@agriwaste.com	919-859-0669
Site Audit	Katie Cross	kcross@agriwaste.com	919-859-0669
Desk Audit	Katie Cross	kcross@agriwaste.com	919-859-0669
	Hal Langenbach	hal@agriwaste.com	919-859-0669
	Chloe Lum	clum@agriwaste.com	919-859-0669
Internal Peer Reviewer	Chris Mosley	cmosley@agriwaste.com	919-859-0669
Verification Statement	Hal Langenbach	hal@agriwaste.com	919-859-0669
Complaints/Appeals/Disputes	Jeff Vaughan	jvaughan@agriwaste.com	919-859-0669

Client Access Arrangements

Do you foresee, any issues with AWT accessing data, site/facilities, or personnel associated with the project? ☐ Y ☒ N. If yes, please provide details.

Client Acknowledgement

Client acknowledges that they have received and reviewed the validation/verification plan and understands the roles of the team assigned to the project.

Choose 1 of the following options:

☒ I do not foresee any conflicts of interest with any of the team listed above in completing my validation/verification.

☐ I have an objection with the following staff in completing my validation/verification and would like them removed from the project:

_____.

 10/21/2024

Team Leader Date

 10/21/2024

Client Date

APPENDIX D: DEED OF VERIFICATION

VCS VERIFICATION DEED OF REPRESENTATION

BY

AGRI-WASTE TECHNOLOGY, INC.

Conversion of SF6 To An Alternative Cover Gas In Magnesium Production In Eaton
Rapids, MI and Strathroy, ON

VCS618

THIS DEED OF REPRESENTATION is made on 16-December-2024

BY

Agri-Waste Technology, Inc. (as VVB)

carbon@agriwaste.com

501 N. Salem Street, Suite 203

Apex, NC 27502

THIS DEED WITNESSES as follows:

1. INTERPRETATION

1.1 In this Deed:

"Accountholder" means the holder of an account in the Verra Registry;

"AFOLU" means agriculture, forestry and other land use;

"GHG" means greenhouse gas;

"GHG Program" means a formal or organized program, scheme or arrangement for the recognition of activities leading to Reductions or Removals, or the crediting or issuance of instruments representing, or acknowledging, Reductions or Removals;

"Project" means Conversion of SF6 To An Alternative Cover Gas in Magnesium Production In Eaton Rapids, MI and Strathroy, ON;

"Project Crediting Period" means the time period for which GHG emission reductions or removals generated by the Project are eligible for issuance as VCUs (the rules with respect to the length of such time period and the renewal of the project crediting period are set out in the *VCS Standard*);

"Project Ownership" means the legal right to control and operate the project activities. Distinct from proof of right;

"Project Proponent" means the individual or organization that has overall control and responsibility for the Project, or an individual or organization that together with others, each of which is also a Project Proponent, has overall control or responsibility for the Project. The entity(s) that can demonstrate Project Ownership in respect of the Project. For the avoidance of doubt where an individual executes this Representation in their capacity as an authorized office holder of the company who is the Project Proponent, this Representation is made by the company, not the authorized office holder;

"Reduction or Removal" means a reduction or removal of one tonne of CO₂e caused by the activities of a Project during the Project Crediting Period. Refer to the VCS Program Definitions for the full definitions for "GHG Emissions Reduction (Reduction)" or "Carbon Dioxide Removal (Removal)";

"Validation/Verification Body" or "VVB" means an organization approved by Verra to act as a validation/verification body in respect of providing validation and/or verification services in accordance with the VCS Program Rules;

"VCS Program" means the GHG Program operated by Verra which establishes the rules and requirements that operationalize the VCS to enable the validation of GHG projects and the verification of GHG emission reductions and removals;

"VCS Program Rules" means the rules and requirements set out in the *VCS Program Guide*, the *VCS Standard* and the other VCS Program documents, as such rules and requirements may be updated from time to time;

"Verification Report" means the written report of verification covering the Reductions or Removals generated by the Project from 01-January 2022 through 31-December 2023 and prepared by the VVB in accordance with the VCS Program Rules; and

"Verified Carbon Unit" (VCU) means a unit issued by, and held in the Verra Registry representing the right of an Accountholder in whose account the unit is recorded, to claim the achievement of a Reduction or Removal that has been verified by a validation/verification body in accordance with the VCS Program Rules. Recordation of a VCU in the account of the Accountholder at the Verra Registry is *prima facie* evidence of that Accountholder's entitlement to that VCU.

"Verra Project Database" means the database that provides public access to all project and VCU information, including retirement and tracking of the AFOLU pooled buffer account (and serves similar functions for other Verra programs);

- 1.2 **"Verra Registry"** means the registry used by Verra that ensures all required Project and program documents have been submitted, maintains accounts of VCUs, issues and ensures the seamless flow of VCUs between registry accounts, and maintains custody and records of VCU legal ownership; Documents referred to in this Deed but not defined shall be the VCS Program documents, as updated from time to time, to which the relevant term relates.

2. REPRESENTATIONS

- 2.1 I am the Validation/Verification Body in relation to the verification of the Project.

- 2.2 I hereby represent and warrant that:

- 2.2.1 I have independently verified the Reductions **or Removals** generated by the Project in accordance with the VCS Program Rules;
- 2.2.2 In relation to any validation findings and conclusions provided in the Verification Report, I have independently validated the Project's compliance with the VCS Program requirements as set out in the VCS Program Rules; and
- 2.2.3 All factual information that I provide in relation to this Deed or have provided in the Verification Report is to the best of my knowledge following due inquiry true, accurate and complete in all material respects and I have not made or provided, and will not make or provide, false, fraudulent or misleading statements or information in relation to this Deed or the Verification Report.

- 2.3 I hereby acknowledge and agree that:

- 2.3.1 The following persons may rely on and enforce the terms of this Deed:
- (a) Verra;
 - (b) each person who is an Accountholder holding VCUs relating to the Project at any given time;

- (c) each person on whose behalf VCUs relating to the Project were retired by an Accountholder; and
- (d) each of the successors and assigns of those persons listed in clauses 1.1.1(a), 1.1.1(b) or 2.3.1(c);

2.3.2 Neither Verra, nor any of its respective affiliates, directors, employees, agents, licensors and/or contractors, shall be liable with respect to any claims whatsoever arising out of this Deed or erroneous information within the Verification Report submitted to the Verra Registry for indirect, consequential, special, punitive or exemplary damages, including, without limitation, claims brought against Verra by Accountholders, Project Proponents, other Validation/Verification Bodies or any other third party. This paragraph shall apply regardless of any actual knowledge or foreseeability of such damages;

2.3.3 I have read, understood and will abide by the VCS Program Rules; and

2.3.4 Verra has an absolute right to amend any of the VCS Program Rules at any time and shall not bear any liability for loss or damage or liability of any kind sustained by the Validation/Verification Body or any other party involved in the Project in any way under the VCS Program as a consequence of such amendment.

3. GOVERNING LAW AND JURISDICTION

This Deed is governed by and interpreted in accordance with English law, and the English courts shall have exclusive jurisdiction to settle any dispute arising from or connected with this Deed including a dispute regarding the existence, validity or termination of this Deed or the consequences of its nullity.

4. SOVEREIGN IMMUNITY

To the extent that the Validation/Verification Body enjoys any right of immunity from set-off, suit, execution, attachment or other legal process with respect to its assets or its obligations under this Deed, the Validation/Verification Body waives all such rights to the fullest extent permitted by law.

5. COUNTERPARTS

This Deed may be executed in any number of counterparts, each of which when executed and delivered is an original and all of which together evidence the same deed.

6. DELIVERY

This Deed is delivered on the date written at the start of the Deed.

EXECUTION PAGE¹

This Deed has been executed as a deed and is delivered and takes effect on the date stated at the beginning of it.

Executed as a deed by Agri-Waste Technology, Inc. acting by

Chris J Mosley Signature of director
Chris Mosley Name of director

Hal Langenbach Signature of director
Hal Langenbach Name of director

¹ **Drafting Note:** Execution blocks may be adjusted to reflect local law requirements, e.g., if a company seal is required in relation to the execution of a deed by a company pursuant to the laws in its jurisdiction of incorporation.