GREENHOUSE GAS PROTOCOL – CRITICAL REVIEW STATEMENT – LIMITED ASSURANCE

Intertek Deutschland GmbH (hereinafter referred to as 'Intertek') represented in this project by the sustainability team, was commissioned by Vale Canada Limited to provide independent third-party limited assurance on the carbon footprint (greenhouse gas emissions) for Vale's:

- Clydach Refinery in Wales (for nickel pellets)

The reporting protocol against which assurance was conducted to is the Greenhouse Gas Protocol – Product Life Cycle Accounting and Reporting Standard.

The critical review assurance exercise was performed against the general principles of ISO 14064-3 Standard (Greenhouse Gases – Part 3: Specification with Guidance for the Validation and Verification of Greenhouse Gas Assertions).

Vale's Scope 1, 2 and 3 emissions data for 2020 have been used to calculate the carbon intensity for the nickel pellets product. Vale emission data from 2020 has been audited by a third party who have provided limited assurance. Hatch, commissioned by Vale Canada Limited, utilized this emissions data to develop the carbon intensity model for the nickel product produced at Vale's operation.

The scope of this assurance activity is to determine if the methodology and calculations used to allocate emissions to the Vale's base metal nickel products from Vale's scope 1, 2 and 3 emissions data follow the Greenhouse Gas Protocol Product Standard.

This assurance activity does not provide any assurance of Vale's greenhouse gas inventory or emission factors used, this assurance activity is already covered by the pre-existing limited assurance activity undertaken by Bureau Veritas.

Description of the studied product

The products included within the scope of this assurance activity are nickel pellets product produced at Vale's Wales (United Kingdom) operations. The reference year for the nickel pellets included within the scope of this work is 2020.

A materiality threshold level of 5% was applied to the study.

Roles and Responsibilities

The calculation and determination of the carbon intensity for the nickel pellets products produced at Vale's Wales (United Kingdom) operation are the sole responsibility of Vale Limited. Intertek's responsibility is to express an independent limited assurance opinion as to whether the carbon footprints calculated for Vale's base metals nickel pellets product has been prepared in accordance with the product standard.

Company Assertion

The carbon footprints associated with the studied product are detailed below.

Table 1: Nickel 2020 Product Carbon Intensity Summary

Scope Cradle to Gate	Value (TCO2eq /tonne) for Scope 1+2	Value (TCO2eq /tonne) for Scope 1+2+3
Nickel Pellets Product at Clydach Refinery	28.1	33.1

Description of Assurance Process and Criteria

Intertek's critical review process was carried out to ensure that:

- Methods used to carry out the product inventory are consistent with the Product Standard
- Methods used to carry out the product inventory are scientifically and technically valid
- Data used are appropriate and reasonable for public reporting
- The inventory report and any conclusions based on the results are appropriate for GHG-only inventories
- The inventory report is transparent and consistent

The assurance process entailed review of the nickel and copper 2020 product carbon intensity calculation methodology report prepared by Hatch (who provided technical assurance and support to Vale) together with an in-depth examination of the excel spreadsheets used to calculate the carbon intensities.

The reviewer used a review checklist to log their comments and these comments were then internally reviewed to ensure that the approach applied is rigorous and transparent before being sent to and discussed with Vale. Responses to these comments were addressed within an updated version of the methodology report which was sent back to the reviewer to check.

Annex A to this Assurance Statement provides the checklist of requirements against which assurance was confirmed.

Conclusion and Assurance Opinion

Following the critical review activities undertaken, nothing has come to our attention that would cause us to believe that Canada Vale have not disclosed accurate and reliable carbon footprint data in conformance with the requirements of the GHG Protocol Product Life Cycle Accounting and Reporting Standard for the nickel pellets product produced at Vale's Wales (United Kingdom) operation.

Therefore, the findings have determined that the GHG emissions reported are in compliance with the Product Standard and the methodological choices and assumptions made are reasonable for public reporting.

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Statement of Independence, Integrity and Competence

Intertek ensures the selection of appropriately qualified individuals based on their qualifications, training, and experience. The outcome of all assurance assessments is internally reviewed to ensure that the approach applied is rigorous and transparent. The assurance team for this work does not have any involvement in any other Intertek projects with Vale Canada Limited.

On behalf of Intertek

Sumit Chowdhury
Technical Manager-Sustainability

Yi Hang Yu
Manager-Climate Change & Sustainability

8th April 2022

Annex A: Assurance Checklist

The methodology report was checked against the following Greenhouse Gas Protocol requirements as a minimum to ascertain assurance with the Product Standard.

GHG Protocol requirement	Conforms to requirement (YES or NO)
GHG accounting and reporting of a product inventory shall follow the principles of relevance, accuracy, completeness, consistency, and transparency	YES
A GHG product inventory shall follow the life cycle and attributional approaches	YES
Companies shall account for carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs) emissions to, and removals from, the atmosphere	YES
Additional GHGs included in the inventory shall be listed in the inventory report	NA
Companies shall define the product, unit of analysis, and reference flow	YES
For all final products, companies shall define the unit of analysis as a functional unit	NA
For intermediate products where the eventual function is unknown, companies shall define the unit of analysis as the reference flow	YES
The boundary of the product GHG inventory shall include all attributable processes	YES
Companies shall report the life cycle stage definitions and descriptions	YES
Companies shall disclose and justify any exclusions of attributable processes in the inventory report	YES
Companies shall report attributable processes in the form of a process map	YES
Companies shall report any non-attributable processes included in the boundary	NA
The boundary for final products shall include the complete life cycle, from cradle-to-grave	NA
The boundary of a cradle-to-gate partial life cycle inventory shall not include product use or end-of-life processes in the inventory results	YES
Companies shall disclose and justify when a cradle-to-gate boundary is defined in the inventory report	YES
Companies shall report the time period of the inventory	YES
Companies shall report the method used to calculate land-use change impacts, when applicable	NA
Companies shall collect data for all processes included in the inventory boundary	YES
Companies shall collect primary data for all processes under their ownership or control	YES
During the data collection process, companies shall assess the data quality of activity data, emission factors, and/or direct emissions data by using the data quality indicators	YES

For significant processes, companies shall report a descriptive statement on the data sources, the data quality, and any efforts taken to improve data quality	YES
Companies shall allocate emissions and removals to accurately reflect the contributions of the studied product and co-product(s) to the total emissions and removals of the common process	YES
Companies shall avoid allocation wherever possible by using process subdivision, redefining the functional unit, or using system expansion	NA
If allocation is unavoidable, companies shall allocate emissions and removals based on the underlying physical relationships between the studied product and co-product(s)	YES
When physical relationships alone cannot be established or used as the basis for allocation, companies shall select either economic allocation or another allocation method that reflects other relationships between the studied product and co-product(s)	NA
Companies shall apply the same allocation methods to similar inputs and outputs within the product's life cycle	YES
For allocation due to recycling, companies shall use either the closed loop approximation method or the recycled content method as defined by this standard	NA
When using the closed loop approximation method, companies shall report displaced emissions and removals separately from the end-of-life stage	NA
Companies shall disclose and justify the methods used to avoid allocation or perform allocation	YES
Companies shall report a qualitative statement on inventory uncertainty and methodological choices	YES
Companies shall apply a 100-year GWP factor to GHG emissions and removals data to calculate the inventory results in units of CO2 equivalent (CO2e)	YES
Companies shall report the source and date of the GWP factors used	YES
• Companies shall quantify and report the following: Total inventory results in CO2e per unit of analysis, which includes all emissions and removals included in the boundary from biogenic sources, non-biogenic sources, and land-use change impacts • Percentage of total inventory results by life cycle stage • Biogenic and non-biogenic emissions and removals separately when applicable • Land-use change impacts separately when applicable • Cradle-to-gate and gate-to-gate inventory results separately or a clear statement that confidentiality is a limitation to providing this information	YES
Companies shall not include the following when quantifying inventory results: weighting factors for delayed emissions; offsets; and avoided emissions	YES
Companies shall report the amount of carbon contained in the product or its components that is not released to the atmosphere during waste treatment, if applicable	NA
For cradle-to-gate inventories, companies shall report the amount of carbon contained in the intermediate product	YES
The product GHG inventory shall be assured by a first or third party	YES

Companies shall choose assurance providers that are independent of, and have no conflicts of interest with, the product GHG inventory process	YES
Companies shall report the assurance statement in the inventory report. The statement shall include: • The level of assurance achieved (limited or reasonable) including assurance opinion or the critical review findings • Whether the assurance was performed by a first or third party • A summary of the assurance process • The relevant competencies of the assurance providers • How any potential conflicts of interest were avoided for first party assurance	YES
Companies shall publicly report information detailed the GHG Protocol Product Standard Section 3.3	YES
To set reduction targets and track inventory changes over time, companies shall: • Develop and report a base inventory that conforms with the requirements of this standard • Recalculate the base inventory when significant changes in the inventory methodology occur and report those changes • Complete and disclose an updated inventory report including the updated results, the base inventory results, and the context for significant changes • Use a consistent unit of analysis to enable comparison and track performance over time	YES