

RESPONSES TO WRITTEN COMMENTS SUBMITTED ON THE REGISTRY'S DRAFT CEMENT PROTOCOLS

The Registry appreciates the comments it received on its draft Cement Protocols. A summary of the responses to the feedback submitted in writing is provided below.

As discussed in the Cement Protocol, the Registry's guidance keeps is focused primarily on calculation methodology issues and verification issues (as opposed to high level reporting rules articulated in the GRP). Moreover, the calculation methodology the Cement Protocol employs is widely considered to represent standard best practice and is well-tested. For these key reasons, the feedback received on the protocol was mostly editorial in nature, as opposed to substantive input focused on measurement and reporting requirements. The bulk of the comments seek to add clarity to the Registry's guidance, and as a consequence have, for the most part, been accepted.

Environmental Protection Agency – Climate Leaders

Comment 1: Make clear that references to emissions associated with cement kiln dust (CKD) for are CKD *not recycled to the kiln*.

Response: Accepted. The clarification has been made.

Comment 2: Make clear that the calculation methodology refers to *process* emissions (as opposed emissions from mobile or stationary combustion sources).

Response: Accepted. The clarification has been made.

Comment 3: Rephrase "imported" CaO/MgO to "non-carbonate" CaO/MgO, so as not to suggest that the Registry considers all imported CaO/MgO as non-carbon bound.

Response: Agreed. The change has been made.

Comment 4: Delete the sentence, "These materials would, in most cases, be either landfilled or incinerated if not for their use by cement companies" because it is only relevant when discussing emission reductions.

Response: Agreed. The sentence is deleted.

World Business Council for Sustainable Development

Comment 1: Before starting with the guidance on how to calculate emissions, describe the general concepts related to organizational and operational boundaries to provide companies with the context of the classification of emissions.

Response: Accepted. The sections pertaining to the Registry's reporting rules (boundary considerations and other matters) precede the guidance on calculating emissions from manufacturing cement.

Comment 2: WBCSD provided the following response to this question embedded in the review draft, ["*Note to Reviewers*: Should the Registry provide guidance on how to determine the CaO and MgO content of the clinker produced?"]: This guidance is not necessary, because the cement plants are experts in this calculations; generally CaO and MgO content are calculated by lab analysis.

Response: Noted. No specific guidance is given. Companies are free to employ their methodologies for determining the CaO/MgO content of their clinker.

Comment 3: Minor point, recommend using a term other than "biogenic emissions":

Response: The term "biogenic emissions" is retained because it is not uncommon and used in other Registry protocols, such as the Power/Utility protocol.

World Resources Institute

Comment 1: We recommend using the term "base year" here instead of "baseline". GHG Protocol standards use the term base year in reference to corporate/organization-level GHG accounting and the term baseline in reference to project-level or offset accounting.

Response: Although we agree that the term "base year" more accurately describes the use of a single year's inventory as a point of reference than "baseline", the term "baseline" is included in the CA Statute pertaining to the Registry. Thus we retain this term to maintain consistency with the GRP and our enabling legislation.

Comment 2: Make clear the distinction between a requirement and a recommendation. If a requirement, it might be better to use the word "shall" instead of "should". Generally, "should" implies recommendation while "shall" implies requirement.

Response: Noted. The document has been revised to clear up any ambiguity.

Comment 3: WRI provided the following response to this question embedded in the review draft, ["*Note to Reviewers:* is the 2% CKD disposal rate adequately conservative?"]: 2% should be fine. This rate is consistent with both the IPCC and the WBCSD CSI tool.

Response: Agreed.

Comment 4: We've been discussing this issue of biomass being "climateneutral" with others in other tools. One thing is you may want to switch from climate to <u>carbon</u> neutral, as the CH4 and N20 emissions from biomass usually are accounted for if they are thought to be significant enough.

Response: Accepted. The guidance has been revised, such that biomass emissions are reported as carbon neutral and methane and nitrous oxide emissions are reported as anthropogenic.

Comment 5: Regarding the language in the Indirect Emissions section, [it] could be stated more clearly. What exactly is meant by "significant"? Does "significant" refer to indirect emissions from purchased and consumed electricity, heat, and/or steam?

Response: Noted. The guidance has been modified.

Holcim (U.S.)

Comment 1: The overview of CCAR protocol contains an inaccurate statement with regard to making masonry cement....

Response: Noted. This sentence attempted to provide explanatory information and is not integral to the protocol guidance; it has been removed.

Comment 2: Holcim strongly recommends limiting the protocol to the use of the clinker-based method... [It] does not recommend using [the cement-based] method for the reasons described below:

- The method uses a calculation that begins with the total volume of cement and clinker factor and then works backwards in order to derive clinker production. It is much simpler and more accurate to use the clinker volume manufactured at the facility since it is a precursor to grinding cement as the final product.
- The second step in the procedure... may over-estimate CO₂
- The default factors proposed in the CCAR protocol will result in large errors.

Response: to be consistent with international practice and to avoid inconsistencies between Registry participants, the Registry has removed its guidance on the cement-based approach. We believe this poses no undue burden on companies that have used the cement-based methodology in the past and might wish to join the Registry because it is nevertheless necessary to collect clinker production and composition data when following either approach.

Comment 3: CCAR states that if the amount of discarded CKD is unknown, 2% of clinker production can be used. While this might approximate the amount of CKD from a bypass of a dry process preheater kiln, the figure does not apply to most of wet process kilns in the US, from which the CKD could be as high as 30% of clinker. Holcim believes that using the "default CKD" is not necessary. Volumes of waste CKD are known for both on-site or commercial disposal. If, for some reason, the exact amount has not been measured, CKD can be estimated based on the raw feed and clinker ratio (higher the ratio, more CKD).

Response: All companies are free to use methods and apply emission factors that better represent the emissions associated with their operations than the Registry's guidance. Thus, if a default factor (which applies to typical manufacturing procedures) is not appropriate for a particular plant, and using it could produce a material discrepancy between the report and certification, then the appropriate approach is avoid the default factor and derive the CKD emission factor according to the guidance. However, the Registry has revised its guidance on calculating emissions from CKD so that it only applies to CKD *not recycled to the kiln*.

Comment 4: In order to get the CO_2 factor for the produced clinker, the draft proposes to identify "type of clinker" by CaO/MgO content instead of by ASTM cement standard. This is not practical for the following reasons:

• The CaO and MgO in clinker changes on a daily and hourly basis. Plants record the clinker production volume for each type of clinker based on ASTM standard instead of on CaO content.

- Most plants in US conduct a CaO analysis for clinker every two hours. A simple average can be obtained for each type of clinker and a weighted average for all types of clinker. This single number would simplify the calculation.
- The free CaO added to kiln raw mix can also be averaged to total clinker.

Response: Accepted. The guidance to determine "type of clinker" by CaO/MgO content has been removed and companies are free to determine CaO content based on accepted industry practices.

Comment 5: Some calculation errors exist in the example of this section.

• In Page 8 Example 1 step 1: 10 metric tons clinker (.6) – 0.075 = 5.925 metric tons CaO

Response: Agreed. The calculation has been revised

• The procedure for subtracting imported CaO is not clear, and can result in large errors.

Response: the protocol clarifies that the example, for illustrative purposes and ease of use, assumes that the imported CaO is non-carbon bond calcium; thus no CO_2 emissions result from its use. It directs companies to conduct lab work on the imported material to determine the actual the amount of carbonate, carbon and hydrocarbons and adjust their calculations accordingly.

Comment 6: Regarding stationary combustion emissions, this section of CCAR's draft treats alternative fossil fuels differently from with WBCSD CO₂ protocol. On one hand, the draft recognizes that "In addition to burning conventional fossil fuels, such as coal, fuel oil, and natural gas, cement companies regularly combust waste-derived alternative fuels. These materials would, in most cases, be either land-filled or incinerated if not for their use by cement companies." On the other hand, the draft also states that "GHG Emissions from alternative fossil fuels are not considered climate-neutral; thus they are included in a cement company's direct stationary combustion emissions inventory".

Although there is still some room to discuss how much CO_2 saving will actually be realized by using the alternative fossil fuels, the protocol has no provision for the concept of "net CO_2 " concept. As written, the protocol does not allow for recognition of CO_2 savings/offsets within a future regulatory framework through the use of alternative fossil fuels.

Response: the Registry's protocol provides guidance on determining absolute, entity-level emissions. It does not provide instructions for measuring, monitoring, and reporting emissions reductions associated with activities, such as using alternative waste fuels, which decrease emissions relative to other possible activities. The Registry augmented its guidance and now recommends that companies also report the emissions associated with using alternative fossil fuels in the Optional Reporting section in their emission report to show the impact of using waste products as opposed to conventional fossil fuel.