# Quantification Protocol for the Substitution of Bitumen Binder in Hot Mix Asphalt Production and Usage

## November 3, 2008 Technical Review Telecon (1:00 PM MST)

**Invitees:**

| Name | Company |
|---|---|
| Kelly Bolitho | Blue Source |
| Arsheel Hirji | Blue Source |
| James Copley | Consultant |
| Norm Pugh | Shell |
| Mark Bouldin | Shell |
| Rich May | Shell |
| Imants Deme | Shell |
| David Strickland | Shell |
| Gary Fore | NAPA |
| Jean Martin | Colas |
| Karen Haugen-Kozyra | Climate Change Central |
| Chuck McMillan | Alberta Transportation |
| Paul Moote | Sinclair Oil |
| Pierre Boucher | Lafarge |
| Susanna Ho | U of C - Civil Eng |
| Lynne Cowe Falls | U of C - Civil Eng |
| Ludo Zanzotto | U of C - Civil Eng |
| James Merriman | Mid Pacific |

**Participants:**

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**Record of Decisions and Discussions:**

Meeting commenced at 1:05 PM MST.

1. **Karen HK: Review of Technical Review Principles and Introduction**

For more information on the Alberta protocol development process vist: www.carbonoffsetsolutions.ca.

2. **Kelly BC - Draft protocol walk-through**

3. **Group Discussion**

i. The definition of the project developer
   - Those who are claiming ownership over the credits, as such, offset ownership can be negotiated between different parties along the supply chain.
   - Seeing as there are four categories of emission reductions achieved by this project, offset ownership may lay in the hands of multiple parties along the supply chain

ii. Temperature of asphalt mix
   - The temperature range for the mix will be variable depending on the particular application (highway, road, etc…)
   - Adding SEAM will lower the mixing temperature
   - Adding wax to the mix will have a compound effect, where the mixing temperature will be further decreased
   - Relative mixing temperatures for specific applications should be cited in the protocol

iii. Asphalt Default Values
   - 5.3% default value may not be applicable as this value may vary based on the application

iv. Protocol applicability
   - Seeing as mixing facilities are most commonly mobile in Alberta and produce multiple mixes in any given time period, the language in the protocol should reflect a project by project based quantification rather than on an annual period.
   - Therefore, a calibration matrix (included in Appendix B) would allow a project developer to calculate the amount of energy required to drive off moisture from the aggregate, thereby calculate rates of fuel usage

v. Stack Emissions Testing
   - Currently, manufacturers only test stack emissions for compliance purposes

- Stack tests would be prohibitively costly
- As such, stack testing will be allowed as a flexibility mechanism should a manufacturer choose to exercise it. As a primary method, emission factors have been extracted from the US-EPA emissions database to quantify emissions associated with fossil fuel combustion based on the volume of fossil fuel consumed at the facility.

vi. Temperature monitoring and metering

- Mix is typically delivered to a holding silo or dropped directly into a truck
- Temperature is metered and recorded during each transfer

vii. Definitions:

a. Bitumen: should be defined as the petroleum based liquid ashphalt

b. Binder: should be defined as the SEAM product with the addition of bitumen

c. Hot-Mix Asphalt: should be defined as a mixture of binder and aggregate

viii. Emission Reductions from Paving Thickness

- It has been agreed that this ER opportunity would be removed from the protocol until further discussions have been had between SHELL and Alberta Transportation

ix. Disclaimer

- A disclaimer will be inserted into the protocol stating that the transportation authority does not promote or directly authorize the use of a binder such as SEAM+ in Hot-Mix.

**Action Items:**

1. Kelly BC to contact Chuck to ascertain appropriate asphalt default values for a range of applications

**Announcements:**

The next review will be held in mid December. Further details on this event will be distributed as they are finalized.