[redacted]

[redacted]

Q7.	**Do you support the proposed workplace exposure standard (WES) for diesel particulate matter (DPM) to protect workers from the adverse health effects of exposure to diesel engine emissions (DEE)?**	Yes

Q8. **What are your reasons for your response to Question 1? Please provide evidence or information to support your response.**

The long- and short-term health risks associated with DPM exposure are well-documented and covered in detail by the SLR report. However, it is worth noting that in addition to DPM's health risks, its incredibly fine size makes it an especially challenging particulate to mitigate which may magnify the risk of exposure. A report by the U.S. department of health estimates that approximately 92% of DPM emissions are less than 1.0 µm in diameter [National Toxicology Program, 9th Report on Carcinogens, 2011]. 1.0 µm particulate is estimated to take 19 hrs to settle 8 ft (2.4 m) in still air, while 0.1 µm particulate is estimated to take 79 days to settle under the same conditions [Linda et al., 2004]. This means that without active control measures, most DPM emissions will present an exposure hazard to workers for the entire duration of a shift. This is particularly relevant for enclosures, as DPM that enters an enclosure (perhaps when the enclosure door is opened) will be trapped in the enclosure and remain suspended in the air for the duration of the shift, presenting a continuous risk to operators unless there is filtration or the introduction of clean fresh air. The small particulate size also makes filtration difficult. OEM enclosures are typically fitted with coarse intake filters that will provide very limited protection against most DPM. In a NIOSH 5040 test [Mischler, Controlling DPM Exposure with Environmental Cabs and PPE, 2012], a MERV 8 filter had an efficiency of 39% against carbon particulate. The results showed that HEPA filtration could provide a >99% filtering efficiency, reducing total carbon content in the test from 706 µg/m3 to <6 µg/m3. We believe that the difficulty of managing such small and dangerous particulate further highlights the need for a workplace exposure standard.

Q9. **Is there an alternative WES to DPM as respirable elemental carbon, or additional WES that should be considered to protect workers from DEE? Please provide evidence or information to support your response.**

We agree that controlling DPM in conjunction with the existing workplace exposure standards for other chemicals that may be present in DEE, is the best way to mitigate the risks associated with DEE.

Q10. **What changes would you need to make in your workplace (over and above any controls currently in place) to ensure workers and others at the workplace are not exposed to levels of DPM above the proposed WES? Please include in your response: i. a description of the control measures currently in place at your workplace(s) to minimise exposure of workers and others to DEE.ii. details of any costs to implement the WES for DPM (e.g., upgrade of ventilation systems in area X, costing approximately $XXX).**

N/A - BreatheSafe's systems currently provide HEPA enclosure filtration that would be compliant with the proposed WES.

Q11. **Is there additional evidence or information that you think should be considered?**

not answered

Q12. **Are there any additional comments you would like to make?**

not answered

Q13. **Upload your submission here: (PDF,DOC or DOCX)** not answered