

## ***Interactive comment on “Mobile measurement of methane emissions from natural gas developments in Northeastern British Columbia, Canada” by Emmaline Atherton et al.***

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Comment 1: -Page 12 Line 20 refers to Omara et al and quotes a "natural gas facility emission volumes of 2.2 g/s".

-Reading through the Omara paper it is not immediately clear where this value originates. As per the Omara abstract:  
"mean facility-level CH<sub>4</sub> emission rate among UNG well pad sites in routine production (18.8 kg/h (95% confidence interval (CI) on the mean of 12.0-26.8 kg/h))"

-Note that 18.8 kg / h works out to 5.2 g/s.

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-Clouding the issue is a potentially inconsistent definition of "facility". Omara appears to only have measured well pad sites and often refers to them as facilities or "facility-level", eg p.2102 starting just before Figure 1 "Among the routinely producing well pad sites, absolute facility-level CH<sub>4</sub> emission rates varied by more than 3 orders of magnitude..." while the current manuscript appears to differentiate between well pad sites and facilities, where the latter have the potential to emit plumes at heights significantly above the assumed 1m AGL.

Can the authors please comment on the origin of the 2.2 g/s value in the Omara paper, as well as clarify the differentiation between "wells" and "facilities" in their manuscript versus the Omara paper.

Comment 2: Can the authors please comment on their use of a constant emission rate of 0.59 g/s for all well pad sites in light of the text in Omara et al (2016, quoted above) stating that "...absolute facility-level CH<sub>4</sub> emission rates varied by more than 3 orders of magnitude, with UNG sites exhibiting generally higher CH<sub>4</sub> emissions (range:  $0.85 \pm 0.40$  ( $1\sigma$ ) to  $92.9 \pm 47.5$  ( $1\sigma$ ) kg/h) ..."

Thank you!

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