

Section A5, top of page 2 of 3.

The definition offered for Destruction Removal Efficiency has to have the parenthetical clause "i.e., converted to CO₂ and water" removed. Destruction and removal does not specify the species obtained only that the original species is no longer present. It is combustion efficiency that measures the transformation to the products of complete combustion, CO₂ and water.

The definition of the visible emissions is also not adequate. The individual smoke particles are generally not visible to the naked eye. It is the population of smoke particles that can be visible. So "smoke particles" should be changed to "populations of smoke particles".

Less important, in the definition of turndown the "maximum flow possible" is not a well-defined term. It should read "maximum flow rating". It is possible to push much more gas through a flare than its maximum rating.

Section A6, page 2 of 2.

Two very minor typographical errors: line 2 "presents" should read "presence"; section A6.4.1, third line "it's" should be "its". I noticed, so I thought I'd tell you.

Section B1.1 and Appendix J concerning the sampling device:

The sampling device has an opening with 20" diameter. Roughly, I would expect the plume to have width similar to the flare pipe diameter, which will be 36" for the steam-assisted tests. I defer to the experts at John Zink that this device will draw the correct sample. We will be able to check this by using the visualization devices from Telops and Leak Surveys to confirm that there is no bypassing of the sampling device.

Appendix B8 Aerodyne DRE

It is not clear to me from this Appendix if the ambient CO₂ is being used in the calculation of the DRE or not. This is an important question. Failure to account for the ambient CO₂ in the dilution air will increase the amount of CO₂ attributed to combustion products and result in reporting a higher DRE than actually obtained. I need a little more time to work out the actual magnitude of the effect for dilution and ambient CO₂ with sample oxygen levels from 18%v to 20.5%v (section B1, page 2 of 2). At the very least, the ambient CO₂ concentration should be measured and recorded. Or maybe I missed where this would be done.

In this calculation and the calculation of the CCE give by IMAC in Appendix B9, the possibility of significant amounts of particulate carbon (soot or smoke) is ignored. This will produce a lower reported DRE than obtained if there is smoking. This will produce a higher reported CE than obtained if there is smoking. If there is measureable particulate carbon then the values calculated for the DRE and CE will have to be highlighted in the reports.

Carbon Balance

The closure of the carbon balance should be attempted. I would have expected Aerodyne to be responsible for this calculation, because they are already responsible for calculating the DRE.

Appendix E Test Modification Protocol

There is no mention of the TCEQ Advisors being consulted or even informed of changes to the test plan. I am assuming that our advice will be sought regarding a proposed change to the test plan.