

"UHA<sub>3</sub>"

Notes on the new Emission Inventory Data and Monitoring Committee Meeting

1. In reviewing the recently submitted and updated Infotox emission inventory hydrocarbon results (Infotox report 016-2017 Annexure 1 Rev 2.0), I have identified the following issues that should be clarified:
  - a. It appears that the entire hydrocarbon emission inventory is based on two different laboratory canister results, Canister A and Canister B. These comprise about four measurements each. (Please note this is in contrast to the claim made at the Public Meeting on Wednesday that canister samples were used to fill in for the numerous missing "over-range" results- there are just too few samples to cover for those all of those instances).
  - b. The two sets of canisters seldom agree in terms of compounds detected or concentration reported. The author simply decides which value he selects for each point. There is no justification for this arbitrary selection process and no comment on the major discrepancies.
  - c. In a number of instances, the intra-set results contain many non-detects. One assumes that the non-detects (reported as zero) dilute the reported emissions for each location.
  - d. Vinyl chloride is detected consistently in Canister B results at appreciable levels. However, the emission inventory is set to zero for this compound.
  - e. Similarly, benzene, tetrachlorethene, styrene, trimethylbenzene, trichloroethene, toluene and ethylbenene and xylene are all excluded for Whirlybirds 2, 7 and 32.
  - f. Airshed reported the benzene emission from Valley 2 as zero (Table 2-2 page 24). This is despite its appearance in the Infotox stone drain samples and in appreciable quantities at the three Whirlybirds (2, 7 and 32).
  - g. The hydrocarbon results contain footnotes that are not included (note the use of symbology "#" and "AAA" throughout the data). There are however no footnotes. This suggests to me that we have not been supplied with the full report.
2. Comments on statements made during the meeting:
  - a. Drs van Niekerk and Burger obfuscated and chose not to reply on why they have ignored their own ambient air data as measured by the Scentinal instruments. These represent actual H<sub>2</sub>S levels being physically measured in the community. The data suggest that the levels being measured are 30 times higher than the levels that they have predicted based on the Infotox inventory and these findings would presumably have a direct bearing on the interpretation of the health impact potential of the landfill.
  - b. Dr Burger did indicate that if the peak levels of 3000 µg/m<sup>3</sup> being measured were at the fenceline, then this was in line with his own model predictions. This is interesting because the highest single reading reported by Infotox based on a single canister result was about 2500 µg/m<sup>3</sup>. It is unlikely that this single value could then be amplified sufficiently to produce a fenceline concentration of 3000 µg/m<sup>3</sup>. It suggests to me that Airshed has in fact disregarded the Infotox data and used much higher values because it distrusts the data it has received. Further confirmation of this would be Dr Burger's own admission that he has privately doubled the emission factors to see what the impact on the projected ambient concentrations would be. I presume he would only have done this if he is also uneasy about the fundamental data he is processing.

- c. In his discussion, Dr van Niekerk set out the logical (and normal) procedure for the calculation of ambient concentrations based on his emission inventory using the dispersion model. He made no mention of modification of the emission data or how professional judgement might have been brought to bear to modify any of the measured data. Given the Enviroserv's professional teams' apparent unwillingness to recognise their own ambient data, my impression is that they believe that they can choose what data to select and ignore those that do not suit their interpretation or purposes. It would be better in my opinion if they explained which data they had selected and why and what data then carried forward to the air dispersion modelling exercise.
- d. Despite attempting to indicate that the professional team had not engaged with the ambient data, Dr Burger ended his presentation with new data sets from Enviroserv's Scentinal instruments that attempted to show that the sources of the highest concentrations of H<sub>2</sub>S were now generally to be found south east of landfill. We are clear that the weather sensors associated with these instruments are poorly located, unreliable and potentially defective. So I am perplexed as to why he chose to present this data selectively, without reference to the numerical concentrations being measured. This is problematic for various reasons but most notably because it flies in the face of the now generally accepted conclusion that the landfill is the major source of odour in the area. It is not clear why he uses data he chooses otherwise to ignore and why he doesn't check his conclusions by reference to local conditions.
- e. Dr van Niekerk described his monitoring work as three continuous campaigns (subject to review of the transcript). This is certainly not my impression of the Infotox work. It creates the impression of a clear understanding of the variability of the landfill emissions. The site notes contained in Annex 4 show three distinct campaigns limited to between 4 and 9 days where individual sources were tested sequentially and for generally less than 10 minutes. Dr Burger then described monitoring the landfill being like trying to measure the variable emissions of fermenting pineapple wine, indicating that the emissions will be variable and subject to gradual changes related to weather and short-term surges related to the accumulation of trapped gas. The Infotox methodology was anything but continuous and could not have generated an understanding of the variability of the emissions. It was left to Airshed to try and estimate the continuous emissions as shown in its Figure 2-4. The difficulty of this is best demonstrated by the cluster of data points collected over three days, most being close to zero and one marginally higher than the theoretical. With this data, Airshed tries to fit the theoretical graph line and project the emissions over the course of the already limited two months. We would appreciate comment on reliability of this approach. Dr Burger avoided expressing his comfort with the input data and this did not quell my disquiet with respect to the conclusions he or Infotox would reach.
- f. Dr van Niekerk indicated that he would respond to my affidavit (presumably also a reference to my review submitted as annexure "A" to the UHA NPC's responding appeal submissions) but not at the meeting, I would argue that that his and Dr Burger's apparent unwillingness to consider our representations in good time is disrespectful to the attempts of the community to engage with their work effectively. Time is of the essence in resolving this matter and it requires robust, constructive engagement.