

REGION 6 EXECUTIVE SUMMARY

8/23/10

ISSUE: CONCERNS ABOUT DISH CONTINUOUS VOC/AIR TOXICS MONITOR

BACKGROUND

At the August 2, 2010, OAQPS public meeting in Arlington, TX on EPA oil & gas industry air quality regulation development, Mayor Tillman of DISH and Alisa Rich of Wolf Environmental gave verbal comments. One of their comments mentioned discrepancies between their sampling results and the readings from TCEQ's continuous air toxics monitor in DISH, TX. They pointed out that the TCEQ monitor readings were lower than their sampling results and called the accuracy of the TCEQ results into question.

Region 6 requested the DISH sampling results from Mayor Tillman mentioned in the public meeting in order to evaluate why there may have been differences in the sampling results.

Mayor Tillman provided the sampling results to Region 6, and provided access to his consultant Wolf Environmental, who had conducted the sampling.

Wolf Environmental, collected two 24-hour canister samples were taken in the vicinity of the TCEQ continuous air toxics monitor in DISH. The DISH canister samples were both taken in a 24-hour period from July 15, 2010 to July 16, 2010.

Region 6 was able to compare 8 compounds: benzene, ethylbenzene, styrene, toluene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, m/p xylene, and o-xylene. The DISH canister results were higher than those reported by the automated gas chromatograph (auto-gc), and the sampling results between the two DISH canisters themselves were different by factors of 2 to 8.

EPA REGION 6 EVALUATION

There are scientific and technical reasons why the DISH VOC canister sampling results could have differed from what the DISH continuous monitor recorded during the same 24-hour period. Some of these reasons for the different measured concentrations could be: the different sampling locations, different sampling methods utilized, and possible different emissions sources.

SAMPLING LOCATION

All three sampling locations (TCEQ auto-GC, and the two canisters) are located in proximity of different potential sources of VOCs. The TCEQ auto-GC is close to a compressor station. As described by Mayor Tillman and maps provided by Wolf Environmental; one of the canisters was in proximity of an airplane runway, and the second canister was near a dehydration and amine unit. Depending on wind patterns and operations at the potential VOC sources, the sampling at these three locations could be monitoring different contributions resulting in possible different concentrations.

- One canister was about 35 meters from the auto-GC, another was about 650 meters away. These distances apart could result in the samplers being impacted by emissions from nearby sources differently than the auto-gc, particularly the canister approximately 650 meters away.

Note: The canister about 650 meters away from the auto-gc (and more likely to be impacted differently) had higher reported concentrations for six of the eight compounds mentioned above.

- The two canister samples were taken at ground level, while an auto-gc sample inlet is typically at 2-3 meters above ground level for sampling

- The two canister samples were outdoors, different from the climate controlled auto-gc trailer environment which could impact resulting concentrations being measured with the two different sampling climate conditions.

SAMPLING METHOD

- The VOC canisters took one continuous sample for 24-hours which was analyzed by a lab.

- An auto-gc typically samples for 40 of 60 minutes each hour. There are also at least 2 full additional hours of calibration verification standard (cvs) /blank checks per each 24-hour period.

- Over the course of 24-hours, the 40 minute per hour sampling plus the 2 full hour cvs/blank checks would result in about 15 total hours actual sampling by an auto-gc, compared to 24 total hours actual sampling for a canister.

This sampling time difference during a 24-hour period could also yield different sampling results. The canister samplers may have been impacted by nearby emissions while the auto-gc was doing internal analysis and not sampling during 20-minute periods/hour and during the full hour cvs/blank checks.

CONTINUOUS MONITOR (AUTO-GC) OPERATIONS

Region 6 evaluated the on-line QA/QC and calibration information for the DISH continuous monitor and investigated the operations of the instrument during the timeframe in question with information from TCEQ, the University of Texas (which operates the monitor) and ORSAT, a sub-contractor for UT. Monitor operations were double-checked and looked fine. There was no obvious internal reason to doubt the validity of the data from the DISH auto-gc at this time.