

Project Name: IH Investigation of Potential Hydrogen Sulfide Exposure at the CETCO Unit on the MD Platform

Project Description:

I arrived at the MD platform on February 6 and meet with the HSE lead to get the necessary orientation. The lead reviewed the background of the CETCO hydrogen sulfide (H₂S) situation as he understood it with me. After that I went to the CETCO unit to familiarize myself with the location, unit and to ask the operator, a number of questions. (1) Have CETCO employees noted hydrogen sulfide in the atmosphere surrounding the unit? Answer: no. (2) What are the historical hydrogen sulfide space readings? Answer: On Jan 18th the CETCO crew started to get a positive reading from the head space of the influent water.

In the evening I meet with the two night CETCO operators and asked them to wear a hydrogen sulfide badge dosimeter for their full shift. (I read the results the next day and the reading was non-detect) I meet with the production lead and got historical information recorded and kept by the control room. On Jan 18th the CETCO crew started to get measureable readings from the head space of a jar test of the influent water. Most readings were around 1 to 5 ppm but readings have been at 10 to 11 ppm. During my questioning, and review of the events I found out that personal air monitoring had been taking place continuously for the CETCO operators and never were any readings above the level of detection. I conducted real time measurements on the evening of Feb 6 and the next day Feb 7 with a MultiRae and a ToxiPro up wind and downwind, and at all 4 compass (E,W,N,S) locations, during filter changes and in the filter disposal box. None of my area measurements read greater than zero. I never smelled the characteristic odor of hydrogen sulfide, even from the headspace samples that had a meter display of 5 to 10 ppm H₂S. The only time I got measurable amounts of hydrogen sulfide (or what the meter picked up as H₂S) was from the headspace measurements.

On February 7, I meet with one of the operators. He provided some excellent information and suggestions. He related that there seemed to be a correlation between the treatment of the production water system with a biocide and the increase in the headspace H₂S. I asked the operator about the nature of the aqueous produced water system. He said it was a closed system. I asked about pressure relief. He said that all pressure relief / venting was directed to the flare. *Note: There is no route for produced water off gas to be release in the operator's zone.*

I decided to test to see if there is a correlation between the addition of the biocide and the increase H₂S in the waste water. I arranged to conduct the experiment with the operators, and CETCO's cooperation.

Conclusions:

There is sufficient air monitoring sample data to conclude that it is highly unlikely that any personnel will have an exposure to hydrogen sulfide at the CETCO unit associated with wastewater treatment. It is even more unlikely, that an exposure would exceed the PEL.

The instrument readings found for hydrogen sulfide were always from the head space of a closed container. No area or personal air monitors ever recorded a reading above the level of detection. No personnel noted the characteristic odor of hydrogen sulfide.

The produced waster / CETCO system are closed, all venting is at the flair. The only opportunity for exposure is when filters were changed. Air monitoring has always been conducted during filter changes with no positive readings for hydrogen sulfide.

I suspect that the instruments were not necessarily reading hydrogen sulfide, but possibly some other gas / vapor that caused the meter to give a false reading. I base this on the absence of the characteristic odor of hydrogen sulfide

The correlation between the addition of the biocide and the detection of elevated “hydrogen sulfide” readings was great. It would be unlike to be a coincidence.