Are Geothermal Emissions (H2S) the Same as Vog (SO2)? NO!!!

Hydrogen sulfide (H2S) is a poisonous chemical asphyxiate, similar to cyanide gas or carbon monoxide. It is much more dangerous than sulfur dioxide (SO2).

The EPA says that hydrogen sulfide can "reasonably be anticipated to cause serious or irreversible chronic human health effects at relatively low doses and thus is considered to have moderately high to high chronic toxicity."

H2S is a colorless, very poisonous, flammable gas with the characteristic foul odor of rotten eggs, which cannot be smelled at higher levels, since the nose becomes de-sensitized. This makes it an insidious poison, since we cannot detect H2S that may be harming us, and the effects are cumulative (mostly on the nervous system).

The Fiedler study indicates that hydrogen sulfide can cause adverse effects in humans at exposure levels much lower than previously expected. It is a toxic gas, causing death at concentrations above 1000 parts per million by volume (ppmv) and eye damage at concentrations as low as 50 ppmv.

It is slightly heavier than air; a mixture of H2S and air with sufficient heat is explosive. Hydrogen sulfide and oxygen burn with a blue flame to form sulfur dioxide (SO2) and water.

Hydrogen sulfide from the volcano is much less significant to the community than hydrogen sulfide from Puna Geothermal Venture (PGV). Naturally occurring volcanic emissions of H2S coupled with SO2, with heat react within minutes to become less harmful by-products. **"The volcano has its own hydrogen sulfide abatement system!"***

Geothermal emissions do not contain SO2, therefore the H2S lingers for a day or more because there is no opportunity for it to be dispersed by SO2 interaction.

SO2, the main component of VOG, is a toxic gas with a pungent, irritating smell, mostly affecting the respiratory system, which is released by volcanoes and in some industrial processes. Sulfur dioxide is also toxic but is typically so irritating to the nose that it provides its own warning when concentrations reach toxic levels.

References: **AMBIENT AIR CHARACTER** *By A. J. Sutton and T. Elias1*, OPEN-FILE REPORT 93-551-E, Prepared in cooperation with the U.S. Department of Energy
***Hawaii Volcano Observatory Volcano Watch** August 25, 1996 "Volcanic Gases Provide Clues to How Volcanoes Work."
