Today's discussion is from the Hazmat Category.

Hydrogen Sulfide Gas (H^2S)

Oil and Gas production across the western United States has increased dramatically and can have an impact on fire suppression operations and expose fire personnel to health hazards. Many parts of the western United States also have natural occurring coal seams that can also produce potentially toxic gases as well.

- Fire personnel can be exposed to hydrogen sulfide gas (H^2S) which is a commonly expelled during oil and gas extraction operations and some coal seam seeps. H^2S is a highly toxic, flammable, colorless gas produced by decaying organic matter and has a characteristic odor of rotten eggs at low concentrations; however, the sense of smell is paralyzed at airborne levels above 50 to 150 ppm. At higher concentrations, H^2S can result in respiratory paralysis, asphyxial seizures, and death. Characteristics of a fatal exposure are rapid "knock down", respiratory depression, tremors, blurred vision, cyanosis, seizures and tachycardia. H^2S vapor can also travel considerable distances to a source of ignition and flash back explosively and gives off corrosive and poisonous oxides of sulfur upon combustion.
- To avoid exposure to H^2S, here are some DO's and DON'Ts concerning fire operations near oil and gas operations:
- DOs:

  - If you are responding to a known oil and gas pad or coal seam areas, DO contact local petroleum engineer or resource advisor.
  - If your unit has known oil and gas operations or coal seams, DO ensure that every firefighter is provided with training on H^2S.
  - If you happen upon a remote oil and gas pad area, DO cordon off the area with flagging and deny entry and DO modify suppression tactics to avoid the area.
  - DO avoid low lying drainage, ravines, and gullies near oil and gas pads and coal seams as they tend to accumulate higher air concentrations of potentially toxic gases, especially during early morning hours when air has the tendency to sink.
  - If you suspect that someone has been exposed to H^2S, DO seek medical care immediately at the nearest hospital.

- DON'Ts:

  - DON'T locate fire camps, ICPs, or helispots on or near oil and gas pads.
  - DON'T depend on sense of smell for warning - H^2S causes rapid deterioration of sense of smell.
  - DON'T attempt fire suppression on or in close proximity to oil and gas pads. Local petroleum engineer or resource advisor may recommend safe working distances and firefighters may also be given H^2S monitors when working near oil and gas pad operations and/or coal seams.
  - DON'T wait to seek medical attention if H^2S exposure is suspected.

References: Maverick Lessons Learned Review

Have an idea? Have feedback? Share it.

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