RED FLAG WARNING

Hazards Associated with Hot Work on Oilfield Tanks, Tankers, Grasslands, and Pastures

Produced fluids, such as crude oil, flowback water, and produced water are brought to the surface, along with hydrocarbon vapors and gases during production operations. These fluids are separated and stored on the production site in tanks which require periodic monitoring and repair. Tanker/vacuum trucks and pipelines are used to transport and/or remove these fluids from the production site.

There are flammable and toxic hazards (e.g. H_2S, benzene) associated with hot work operations (burning, welding, using fire-or-spark producing tools) on permanent and temporary storage and tanker/vacuum truck tanks and other equipment such as heater/treaters, flowback tanks, interconnecting pipes, and produced water tankers which contain hydrocarbon residues.

TEXAS (News Channel 6) — Over the last 14 days in the west Texas area, temperatures climbed over 100 degrees and there hasn't been significant rain since June, resulting in dry conditions prime for wildfire ignition. Fire departments across Texas responded to multiple fires sparked by welding in the last week.

Texas A&M Forest Service reminds everyone to be aware of the increased wildfire potential while using welding equipment and encourages preventative measures and maintenance to avoid accidental ignition.

Welding fires are caused by sparks, droplets of melted metal, torch flames, combustible materials touching a hot piece of equipment, or flammable vapors igniting due to heat. Sparks can travel up to 35 feet at temperatures hotter than 2500°F.

By taking the time to maintain equipment and prepare work areas, you can mitigate the threat of starting a wildfire.

Employers

Must conduct exposure and hazard assessments at the worksite and review with workers, including:
- Hazards of possible flammable/toxic hydrocarbons being present
- Safety Data Sheets (SDSs) on produced fluids
- Proper use and limitations of personal protection equipment (PPE), including eye, face, skin, hearing, and respiratory protection, and fire retardant clothing (FRC)

Must establish safe work practices and procedures for:
- Hot work, confined space work, Lockout/Tagout (LOTO) work
- Cleaning and venting tanks to safe areas before beginning work
- Monitoring (multi-gas meter) for H_2S, oxygen, and flammable gases and vapors (e.g. lower explosive limits - LELs)
- Thawing frozen valves, hoses, and lines

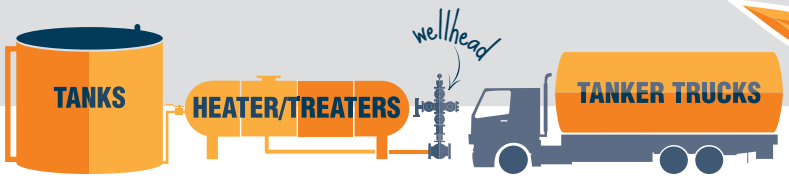
Must implement and train workers on additional hazard control measures, including:
- Hot work permits and other safe work practices (e.g. confined space, LOTO)
- Recognizing and eliminating ignition sources (e.g. ground and bond equipment, intrinsically safe tools)
- Air monitoring devices and procedures
- Emergency procedures

Must verify sub-contractors are following work practices/procedures

An Empty Tank Does Not Mean a Safe Tank — Check Every Tank Every Time

Workers

- Follow employer's work practices and procedures
- Use proper grounding/bonding
- Obtain appropriate hot work permits before beginning work
  - Review with and have supervisors sign off on permit/audit work procedures
- Attend hazard communication training – know the contents and hazards of the tanks you work on
- Control potential ignition sources (e.g. static, cell phones, open flames, cigarettes, sparks from tools or metal objects, etc.)
- Use required PPE, air monitoring devices, and heed all alarms
- Evacuate unsafe work area and report hazards immediately



If you're uncertain about potential risks or have questions,
STOP THE JOB AND ASK — IT COULD SAVE YOUR LIFE!

Validus Energy has more resources about Hot Work at the Safety Solution Center: www.validus.energy

Any Job Big or Small, Fire Safety is for All