

# MINIMIZING RISK DURING FLUIDS TRANSFER

## for the Oil and Gas Industry

Between  
2016 and 2020

**12**  
FATALITIES

Gases and vapors pose a hazard in the oil and gas industry. Hazardous levels of gases and vapors can be present during produced fluid transfer (vacuum loading and off-loading operations).

Hydrocarbon gases and vapors (HGVs), hydrogen sulfide (H<sub>2</sub>S), potential flammable and explosive atmospheres, and associated oxygen displacement can surround the truck during transfer. Workers should be trained in the hazards and safe operations of this process. Controls should be developed and implemented by all employers engaged in the production, transport, and receipt of produced fluids.



## Hazards

- Toxic/flammable gases and vapors can be released from truck vents while transferring products
- Toxic/flammable gases and vapors can collect in low areas, confined spaces, and spread throughout the site
- The release and pooling of flammable vapors can create flammable and explosive atmospheres during loading/off-loading
- Possible oxygen-deficient atmospheres, which can lead to unconsciousness or death

## Responsibilities

### Pick Up/Load Off Facilities for Processing Fluids

- Perform Hazard/Risk Analysis, develop Job Safety Analysis (JSA) for loading/unloading and include subcontractors
- Perform Fire Risk Assessments at the worksite and review with truck hauling company and their workers
- Monitor atmosphere for toxic/flammable gases and vapors
- Provide and train on the use of a personal multi-gas monitor
  - \* **See Multi-Gas Monitor Hazard Alert**
- Perform Personal Protective Equipment (PPE) Hazard Assessment
- When feasible, provide the use of a vertical exhaust stack extending 12 ft. above the truck to vent to areas free of potential hazards, sources of ignitions, and personnel
- Develop emergency procedures, particularly for incidents involving diesel engines "runaway" or "over revs" due to the presence of HGVs.
  - \* **See Prevention of Fatalities from Ignition of Vapors by Mobile Engines and Auxiliary Motors Hazard Alert**

### Truck Hauling Company

- Establish safe work practices and procedures which include:
  - Position the truck cab/engine upwind of vapor sources and extend the pump vent discharge away from the diesel engine air intake to prevent "runaway" or "over revs" or install positive air shut off control
  - Use conductive hose and closed connections
  - Vent to safe atmosphere locations using a safety venturi (blower), mixing vapors with air, etc.
  - Use the vertical exhaust stacks extending 12 ft. above the truck when available or attach exhaust hose at least 50 ft. or more on vacuum trucks to areas free of potential hazards, sources of ignition, and personnel
    - \* **Note: Reference API RP 2219 for Guidance**
- Monitor atmosphere for toxic/flammable gases and vapors
- Perform PPE Hazard Assessment
- Develop emergency procedures, particularly for incidents involving diesel engines "runaway" or "over revs" due to the presence of HGVs.
  - \* **See Prevention of Fatalities from Ignition of Vapor by Mobile Engines and Auxiliary Motors Hazard Alert**
- Provide job-specific training to workers including:
  - Hazard Communication – i.e., be aware of the physical and chemical characteristics of flammable, combustible, toxic, and corrosive materials – **Know the contents of the produced fluids**
  - Vacuum truck operations
  - Bonding and grounding requirements
  - The use of a personal multi-gas monitor
    - \* **See Multi-Gas Monitor Hazard Alert**

### Truck Driver

- Attend Hazard Communication Training – **know the contents and hazards of the produced fluids** being loaded and off loaded
- Participate in Hazard Assessments
- Follow safe operating procedures and JSAs
- Attend job-specific training
- Remove other potential ignition sources from hazard zones (e.g., static, cell phones, open flames, cigarettes, sparks from tools or metal objects, etc.)
- Use required PPE, personal multi-gas monitor, and heed all alarms
- Ensure truck is bonded and grounded before transferring fluids
- Ensure the vacuum truck cab/engine is placed upwind of vapor sources and extend the pump vent discharge exhaust hose at least 50 ft. or more away from the diesel engine air intake to prevent "runaway" or "over revs"

\* All Oil and Gas Hazard Alerts can be found on National Steps website: [www.nationalstepsnetwork.com/hazard-alerts](http://www.nationalstepsnetwork.com/hazard-alerts)

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