

SAFETY ADVISORY

2017-05

December 14, 2017



Review Tank Cleaning Procedures

The BC Oil and Gas Commission (Commission) is advising permit holders to review their procedures for tank cleaning operations and ensure procedures and oversight are adequate to address fire and explosion hazards.

This advisory follows two recent incidents involving explosions during tank cleaning operations at production facilities. Both incidents resulted in worker injuries and equipment damage and have been the subject of investigation.

Permit holders should refer to the [Enform Fire and Explosion Hazard Management Guideline \(FEHM\)](#) for guidance in developing fire and explosion hazard management programs. Of particular significance is the advisory on Page 46 of the FEHM on the difficulty of controlling ignition sources:

- Elimination of ignition sources should never be accepted as the sole basis for safety.
- The only reliable way of preventing fires and explosions is to avoid the formation of flammable mixtures in the first place.

Permit holders may also refer to API STD 2015 Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks and API RP 2219 Safe Operation of Vacuum Trucks Handling Flammable and Combustible Liquids in Petroleum Service for additional guidance.

Preliminary investigation results of the two recent incidents identified the following issues:

- Failure to ensure adequate grounding and bonding of equipment increasing the risk of static buildup and discharge, including:
 - The use of non-conductive plastic extension on vacuum truck hose.
 - Failure to ensure that grounding and bonding was continuous along the entire length of the vacuum truck hose where multiple connections were present.
 - Attaching ground wires to non-approved grounding locations.
 - Failure to prevent the formation of an explosive atmosphere inside the tanks. Formation of an explosive atmosphere could be prevented through the use of measures such as:
 - Displacing the tank to an inert gas.
 - The use of foam to reduce the release of flammable gas from sludge.
 - The use of mechanical ventilation.
-

- Failure to detect the formation of an explosive atmosphere inside the tanks. Atmospheric monitoring conducted outside of the tanks was not adequate to detect that an explosive atmosphere was present inside the tank.
- Failure of personnel to wear functioning personal gas monitors.
- Failure to complete periodic inspections to ensure procedures are being followed.

If you have any questions regarding this Safety Advisory, please contact:

Kevin Parsonage
Supervisor, Field Engineering and Technical Investigations
BC Oil and Gas Commission
Kevin.Parsonage@bcogc.ca
250-794-5259