

SCP Tribune[©]

Mystery Deaths

An unexplained pattern of oilfield worker deaths



Several workers have died mysteriously on crude oil storage tank tops and catwalks in the fracking fields of North Dakota. No witnesses; just corpses. Interestingly, Chemists testing Puget Sound tank barges may have some clues about these unexplained tragedies.

In shale formations like the Bakken, fracked oil wells produce tremendous surges of Natural Gas (methane) along with the crude oil. So tanks used to store the crude onsite are also loaded with methane.

Chemists, Competent People, and Mates in the Pacific Northwest who have dealt with Bakken Crude have immediately noticed Combustible Gas (LEL) readings off the scale, but fairly low photoionization background hydrocarbon readings. But those hydrocarbons, largely methane, are in fact there. The methane lights up our LEL sensors, but is invisible to the PID. And to our noses!

Oil field workers familiar with crudes from Canada or Louisiana or California may expect a definite stench as they open a tank's ullage port for gauging tank liquid levels. These workers have not been equipped with any instruments to measure the combustible gas levels outside a tank.

Bakken Crude oil's odorless methane may make its vapor seem more friendly, less sulfurous, more like ordinary air. The Bakken crude vapor cloud pictured above, boiling from a freshly-opened tank, may not ring the sensory alarm bells that might save a worker from such lethal exposures.

Maybe the industry could use some SCP's equipped with an LEL sensor.

TRAINING

Shipyards Competent Person

3-Day Initial

May 6-8

Jun 10-12



1-Day Updates

May 7 (Seattle & Bremerton)

May 27 (Fish. Term.)

June 11

June 24

OSHA 10 Maritime & General Industry

10-hour training on 29 CFR 1915 or 1910 provides methods on recognition, avoidance, abatement, and prevention of safety and health hazards in workplaces specific to the maritime or general industries.

Please call our office (932-0206) for the next class date.

Unguided Missile



It always seemed straightforward why so many CamLoc caps and plugs were secured to the pipe with those bothersome wire rope lanyards: To keep them from being lost or stolen, of course.

Turns out loss control is the secondary job of the lanyard. The primary job was illustrated in early April by a near miss, as reported by a towboat maintenance crew.

Workers were preparing to repair a 3" firemain, undisturbed for several years. They needed to remove a CamLoc opening to the deck connection. When a workman pried the CamLoc "ears" back, the plug shot out without warning, narrowly missing the man's forehead.

Where did that pressure come from?

In theory, the pipe's galvanized coating could have produced hydrogen. But such a high pressure is unlikely. Methane from bacterial action? Again, unlikely.

Best explanation is this: During routine testing the firemain pump pressurized the water line, with the cap in place. Then, for whatever reason, someone closed a valve, trapping the pressure. Opening the cams released the pressure instantly and explosively, rather than the gentle venting you get when unthreading a standard pipe cap.

The lesson is, of course, that every Camloc plug can be an unguided missile unless it has an attaching lanyard (3/16 stainless wire cable?). Plus, with the lanyard it won't get lost.

The Waste of Haste

In a big hurry, the SCP must test a forepeak ballast tank "Safe for Hot Work."

The project: crop out and renew the existing manway flange in the deck of the dry stores (overhead of the ballast tank.)

The manway: a circular opening. The manway cover: a round plate single-bolted to a "strongback" fastened to each side of the opening.

And, the strongback bolts on each side are globs of rust; they haven't been apart in decades. The strongback is rusted in place. No one can enter that tank.

(Continued on the next page)



Wasted manway, seen from inside the tank

Ask a Chemist

Question: How do we determine the %LEL of hydrocarbon levels in an inert atmosphere? Doesn't the combustible gas meter need oxygen to work?



Answer: This question may be vital when gas-freeing cargo tanks when following modern (ISGOTT) standards. The traditional LEL sensor won't work with inert atmospheres because it needs oxygen to detect burnt hydrocarbons. So, when testing the gas content of inerted cargo tanks, which have no oxygen, you need different test gear. An "infrared" (IR) sensor is the right choice because it measures the hydrocarbons differently than the traditional LEL sensor. At Sound Testing we use, for instance, a "GFG" brand IR machine. Other meter brands can furnish comparable gear.

The Waste of Haste, Cont.

The clock is ticking; there's a production meeting in 10 minutes, and the project manager expects the competent person's report on the various hot work jobs.

The rust and scale and water of the ballast tank are in plain sight; the air tests perfectly fresh. The forepeak ballast tank is Safe for Hot Work. No doubt. Except, there is doubt.

It's that nagging knowledge that in order to Deal in the World of Certainty, Competent Persons (and Chemists!) must physically enter and explore the details of spaces OK'd for either Entry or for Hot Work by fellow workers.

A worker needs 2 pipe wrenches and 10 minutes to remove the bolt from one side. But finally the strongback swings free and the SCP climbs the rusty ladder to do a proper, bright-flashlight inspection.

And that's when he notices that, although there was no hint while standing on the deck above, the forepeak overhead has been covered 3" thick with combustible insulating foam.

A workman-like job by the SCP prevented black smoke rolling; an inaccessible fire; smoke damage to the accommodations, the structure and contents; and that very unpleasant call to 911.

Well Done, Shipyard Competent Person!

Congrats to **Paul Huber** from **Manson Construction** for winning last month's quiz and a \$25 gift card!

Last Month's Quiz:

Q: Legal limits for most toxics are listed in the standards in "parts per million." But some are not: they are listed in "milligrams per cubic meter." Why this "milligrams per cubic meter"? Why are not all values in "parts per million"?

A: Simply, milligrams refer to particulate matter (dust, fume or mists) contaminants whereas parts per million refer to gaseous contaminants. Calculations get complicated, but that's another topic.

This Month's Question:

Why will some anti-fouling paints, which work perfectly well on a barge hull, be ineffective on the hull of a cabin cruiser?

Submit your answers to newsletter@soundtestinginc.com before May 25, 2015. All correct answers will be entered into a random drawing and one person will win a \$25 gift card!

One entry per person, please.