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CONNECTION

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OSHA RELEASES FINAL RULE UPDATING DECADES-OLD BERYLLIUM EXPOSURE LIMITS

Under the final rule, the 8-hour PEL decreases to 0.2 micrograms of beryllium per cubic meter of air from the previous limit of 2.0 micrograms. The rule also sets a short-term exposure limit of 2.0 micrograms of beryllium per cubic meter of air over a sampling period of 15 minutes. The previous PELs were "based on decades-old studies," OSHA stated in a Jan. 6 press release. In addition, the rule sets requirements for use of personal protective equipment, medical exams, training and other protections. Employers will have one year to comply with most of the provisions in the standard. The requirement for employers to provide change rooms and showers begins two years after the effective date, and the obligation for implementing engineering controls starts three years after the effective date. OSHA claims the rule will annually save the lives of 94 workers.

Gerry Luther, CIE, OHST

IDENTIFYING YOUR BLIND SPOTS

What are your blind spots? We cannot pay attention to everything around us, so each of us develop internal rules that help us pay attention to the most important issues. But how effective are these internal rules? One of my favorite safety signs was located at a parking lot exit from the worksite. The company has a great safety record and is always trying to get better, but this sign pointed out something that should be obvious to everyone. The problem is that everyone does it so often that they forget about the risk. What was on the sign? It simply read, "You are about to enter the most dangerous part of your day, the drive home." To develop a safe worksite, companies and their employees need to vigilantly look for hazards that are in plain sight.

In 2016, OSHA-NIOSH put out a Hazard Alerts related to a commonplace activity in the petroleum industry. The Hazard Alert was titled "Health and Safety Risks for Workers Involved in Tank Gauging and Sampling at Oil and Gas Extraction Sites" and highlighted a practice that has been around for more than a hundred years. Despite that, OSHA has received reports of worker injuries and deaths related to this common practice. In the alert, "NIOSH and OSHA…identified nine worker fatalities that occurred while workers manually gauged or sampled production tanks from 2010–2014 [NIOSH 2015]. Exposures to hydrocarbon gases and vapors and/or oxygen-deficient atmospheres are believed to be primary or contributory factors to the workers' deaths [Harrison et al. 2016]."

There are many other examples of hazards being in plain sight. For example, an office building was evacuated when a bromine gas release occurred. The release was related to chemicals that were used to keep outdoor fountains clear of algae.

The point of these three examples (driving, tank gauging and gas release) is that the activities or practices in each case are so commonplace that we can easily forget the real hazard that they present. However, a good safety program requires constant vigilance along with the ability to assess the range of potential safety risks related to that hazard.

Since many hazards are commonplace activities, it is important to educate your workers to be vigilant to unseen or unidentified hazards. A good place to start is with activities that "everyone knows to or not to…" The problem with that statement is that it is not always true. What if it is a new employee? Are they automatically given the wisdom of a 20 year employee? What about a contractor who is new onsite for a few days? Many of the tank gauging injuries and fatalities occurred to contractors who were new to that job site.

Of course, all identified hazards need to be evaluated according to the potential risk of an event occurring, but it is impossible to evaluate the potential risk if that hazard is in a blind spot. Challenge your employees and your safety team to identify any blind spots. This will allow you to adequately assess your potential risks and provide a safe place for your employees to work.

Bruce Packard, MD, MPH

MARITIME BENZENE WORKER EXPOSURES

Caliche, Ltd. has been conducting benzene worker exposure assessments [WEA] during product transfers on barges and ships since 1992. These transfers include loading and off-loading many petroleum based products such as crude oil, gasolines, light ends, frac oil, diesel, naphtha, etc. The tasks sampled included connecting and disconnecting product lines from ship and barge manifolds, collecting product samples, checking fugitive benzene from hatches and area samples in crew's quarter, galleys, etc. Some 118 ship and 150 barge product transfers were sampled. The following table summarizes the worker exposures we documented.

1992-2016 DATA SUMMERY				
CATEGORY	BARGES [150]		SHIPS [118]	
	TWA	STEL	TWA	STEL
Number of Samples	796	645	2436	956
Maximum Concentration [ppm]	150	760	10.97	58.7
Minimum Concentration [ppm]	< 0.01	< 0.04	< 0.01	< 0.03
Average Concentration [ppm]	1.22	19.79	0.25	2.45
Geometric Mean Concentration [ppm]	0.14	2.50	0.08	1.92
% of Samples > USCG PEL:	3.14%	24.19%	1.72%	4.60%
% of Samples > USCG AL:	5.78%		3.82%	
% of Samples> ACGIH® TLV®:	5.78%	35.19%	3.82%	12.03%
# Vessels w 1 Sample > USCG PEL	12 [8%]	70 [47%]	15 [13%]	25 [21%]
# Vessels w 1 Sample > ACGIH® TLV®	27 [18%]	90 [60%]	32 [27%]	48 [41%]

Disconnecting product lines from the barge/ship manifold was the operation that was consistently the most problematic because of spills from product remaining in the lines and leaking out upon disconnect. Also, product sampling and fugitive emissions were frequently the source of significant benzene exposures. The data also indicate that these operations are unpredictable and exposures frequently still exceed USCG and ACGIH® exposure standards. Just last year [2016] we measured a STEL exposure of >700ppm during transferring of relatively pure benzene.

Results indicate that workers conducting these tasks must be wearing adequate personal protective equipment, especially respirators. We recommend a minimum of a full face, negative pressure organic vapor respirator be required for products containing small amounts of benzene. For transferring relatively pure benzene an air supplied positive pressure respirator is recommended. In addition all workers wearing respirators need to be adequately trained and fit tested.

Frank Parker, CIH, CSP, PE, BCEE

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