



# SCP Tribune<sup>®</sup>

## In the Heat of the Night

Competent People can write a space “Safe to Enter” when the air has “fresh-air” (~21%) oxygen and is free from measurable gassiness (from fuel or cargo or solvents). Also, we have checked for toxic or irritating airborne chemicals and found, again, fresh-air results. Toxic chemicals are essentially absent.

But, we are not done. OSHA also directs us, in its “Supporting Documentation,” to enter that tank or void and check diligently for “non-atmospheric” hazards.

“Non-atmospheric” hazards fall into 3 rough classes.

1. Fall dangers. Slippery surfaces, unguarded deck openings...that sort of thing. Workers should know what they’re up against.
2. Energy (such as hydraulics or augers or automatic-start motors) which may get loose suddenly. This is a lock-out/tag-out issue.
3. Radiation heat. (It is, after all, summertime.)



Continued

## TRAINING

### Shipyard Competent Person

#### Full 3-Day Courses

Jul 11-13 @ SSC\*

Aug 1-3 @ SSC\*

Sep 5-7 @ SSC\*

\*South Seattle College  
Georgetown Campus



#### 1-Day Update Courses

Jul 12 @ SSC\*

Aug 2 @ SSC\*

Aug 9 @ Fishermen’s  
Terminal

Sep 6 @ SSC\*

Sep 13 @ Fishermen’s  
Terminal



### DIRECTIONS:

#### Fishermen’s Terminal:

Nordby Conference Room

#### SSC:

Georgetown Campus very close to  
I-5, Michigan St Exit, straight to  
Corson Ave S

### OSHA 10 Maritime

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

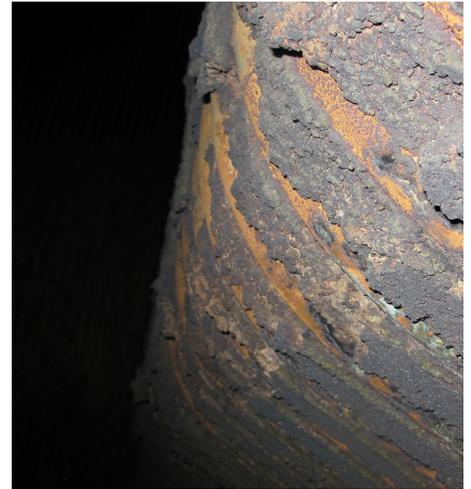
Any Questions? Call 206-932-0206

## In the Heat of the Night, Cont.

Heat became an issue when a vessel needed emergency repairs in the fire side of a propulsion boiler. Between bunkering and cargo operations, workers had only 2 shifts to complete repairs. So time was short as the Chief Engineer set up ventilation to cool the boiler.

As the fire side began to cool from 350-400°F, when would the boiler become “Safe to Enter”?

Within a couple hours the air from the exhaust fan was down to 105°F...still too hot for us locals. Another valuable hour brought it below 100°F. Finally, the Chemist could get into the fire side. But, only with care: the pipe and refractory surfaces were still above 200°F by the heat gun ...hot enough to burn on contact.



Turned out the air temperature was not the only concern. The stream of cool air could not protect the Chemist’s exposed skin from the pulsing, radiated heat of the boiler’s walls and tubes. It took another 1-1/2 hours of forced cool air before the Chemist judged the boiler “Safe to Enter.”

How to test temperatures? Older meters (Biosystems PhD and Rae Systems “Multirae Plus”) can read the air temperature. And for surface temperature you can get a “heat-gun” at your hardware store for about \$80.

In rough terms, with enough ventilation and bottled water, surface temps below 125°F and air temperature below 90°F will allow safe repairs. But, ultimately it’s a judgment: The SCP or Chemist must experience conditions personally before giving craftsmen entry for work.

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## Ballast Good, Ballast Bad



“Ballast” is a friendly term for most of us ship-repairers. Water ballast, when pumped overboard, generally leaves a tank with fresh air, with cleanliness that means for Safe For Hot Work.

But, like a lot of shipyard situations, ballast can prove complicated. The Competent Person should take extra care when dealing with **fixed** ballast. “Fixed” (or **permanent**) ballast takes 2 forms.

Usually, chunks of metal (lead “pigs”, lengths of re-bar, steel plugs from a metal punch) are laid between the bottom-longs, sometimes even in fuel tanks. Of course, such fixed metal ballast makes it impossible to clean such tanks completely. So, the Chemist and Competent People must then be extra careful about fire protection during hot work repairs. (Continued)

Fuel Trapped in Sections of Rebar

## Ballast Good, Ballast Bad, Cont.

But recent repairs on a container vessel reminded us that not all permanent ballast is metal: The large double-bottom tanks along the vessel's keel carried drillmud for its weight as permanent ballast. (Drillmud is about 1.5 times as dense as sea water.) Plus, its chemistry can be adjusted so it will not form rust.

A fracture in the fixed-ballast tanktop meant vee-and-weld repairs. Of course, the Competent Person had the manway opened to check the tank's contents and to test its airspace.

The drillmud rested under a surface layer of water. And the tank's airspace tested (1-2% L.E.L.): Safe for Hot Work. Where did that 1-2% come from? It turns out drillmud can be laced with formaldehyde to prevent bacterial growth! Good thing no one had to enter that tank; the air was not safe to breathe.



**Permanent Drillmud Ballast  
Under Layer of Water:  
Safe For Hot Work**

Congratulations to **Paul Huber of Manson Construction**,  
June's Winner!  
Honorable Mention: Lian Rinaldi.

### Last Month's Question:

A 1,000 gal waste-oil tank on a fish processor was cleaned and certified **Safe For Workers**. It contained only fresh air. At 6:00AM the next day the Competent Person measured the oxygen at about 21%. Later, as he was testing for 2<sup>nd</sup> shift the oxygen reading surprised him. It had dropped. He tested it again. Sure enough, the oxygen was down 1 unit to 20%.

...If the oxygen had not been absorbed, how had it been reduced?

Come to find out, someone had dumped some compressor oil, heavy in Freon™ (R-22), into the tank. The vaporizing R-22 apparently had displaced some oxygen.

The oxygen went down by 1 percent (21 to 20%).

**1) What %-age of Freon would explain the lowered oxygen reading? 1% in the oxygen portion plus another 4% for the nitrogen; Total 5% Freon**

**2) Roughly how many ppm of R-22 were in the tank's air? 5% = 50,000ppm**

**3) Was the tank still safe for workers to enter? 50,000ppm is greater than the PEL (1,000ppm). So the tank is Not Safe to Enter.**

**July's Question:** Complete the Poem:

Hydrocarbons only blow up  
In their vapor state  
But solids stored in the magazine  
Can always \_\_\_\_\_.

Please send us your answer to [newsletter@soundtestinginc.com](mailto:newsletter@soundtestinginc.com) or [admin@soundtestinginc.com](mailto:admin@soundtestinginc.com) before July 25, 2018. Every correct answer will be entered into a random drawing and one person will win a **\$50** gift card!

One entry per person, please.