



# HSE NEWS

## WORKING TOGETHER FOR A SAFER WORKPLACE

The target audience for this newsletter is PDO Staff and contractors community.

### Latest HSE Statistics YTD 31<sup>st</sup> December 2017

	2016	2017
Lost Time Injury Frequency (LTIF)	0.22	0.20
Workplace fatalities	3	1
Non-work related fatalities	2	7
Non-accidental deaths (NADs)	13	17
Lost Time Injuries (LTIs)	43	46
All injuries (excluding first aid cases)	192	163
Motor Vehicle Incidents (MVIs)	100	93
Roll over - MVIs	30	15
Serious MVIs	37	22

### Vehicle Class A/B Defects

Class A	83
Class B	2037

### Life Saving Rules Violations

Permit (PtW)	38
Gas testing	15
Lock Out Tag Out	11
Confined Space	24
Overriding Critical Safety Device	3
Working at Heights	48
Road Safety Seatbelts	69
Journey Management	39
Suspended Load	43
Smoking	20
Drugs and alcohol	3
Speeding/GSM	66

### Lean Tip

If you work in an area with H2S gas and have no objection to being clean shaven, then you should shave on a daily basis.

## Important News

### Hydrogen Sulphide (H<sub>2</sub>S) and the New Filter Hoods

In PDO we have processes which contain Hydrogen Sulphide (H<sub>2</sub>S). The concentration of the H<sub>2</sub>S in our process ranges from low to extremely high. It is an extremely toxic gas. The effect on people is dependent upon its concentration, but can range from a bad smell and eye irritation to immediate death.

We manage our facilities based on classification & zoning, which take account of the quantity and pressure of H<sub>2</sub>S in the wells and processing equipment. We currently have 3 classifications for our facilities; **Sweet**, **Sour** and **Critical Sour**. Facilities are zoned in order to manage particularly high areas of risk.

The type of escape respiratory protective equipment (RPE) used at our facilities is dependent upon the classification and zoning of a facility.

Further details can be found within the H<sub>2</sub>S & SO<sub>2</sub> Management specification (SP-1190 series) which takes account of the learning's from our operational Critical Sour facilities and projects (see Table 1 for summary).

This HSE note focuses on the provision of the filter hoods, which are in use for our Sour facilities and the Emergency Planning Zones, to protect personnel in the event of an accidental release. Filter hoods are used where it can be demonstrated that their use is more appropriate than the typical

	H2S Escape RPE required
Sweet	None
Sour	Filter Hood
Sour – Yellow Zone	Supplied Air RPE
Critical Sour	Enhanced RPE (CamLock)
Critical Sour EPZ	Filter Hood

Table 1

supplied air RPE, which is heavy, cumbersome and typically has a limited working duration. However, it is known that facial hair can reduce the effectiveness of the filter hoods, as the seal between the face and the product is impaired. Despite there being many products on the market none of them had been demonstrated for use with facial hair. PDO was keen to fully understand the effect of both facial hair and long hair, in order to protect our personnel effectively. This note provides details of the filter hood trials which were conducted in 2017.



Sundstrom SR-76



Avon NH-15

## What You Need to Know

MSE4 conducted trials to determine what protection level is offered by filter hoods, when the wearer has facial or long hair. These trials were conducted for 3 filter hoods types; the existing hood which was in use in PDO; the Sundstrom SR-76, the Avon NH-15 and one other. Once the trial results were known a decision was taken by PDO manage-

ment to change to Avon NH-15 as it provided an enhanced level of protection for persons with facial hair. The majority of Sour sites or EPZs for Critical Sour sites are now in the process of moving over to the NH-15 Hood. There are a limited number of areas, such as the RHIP construction area, where the maximum possible concentrations of H<sub>2</sub>S have

been demonstrated to be sufficiently low such that the Sundstrom SR-76 can still be used. The existing supplied air escape RPE which is in use at facilities should be utilised as normal. These trials do not impact the current arrangements for Breathing Apparatus, such as for confined space entry or break-ing containment.



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### HSE Advice Note

Respiratory protection against toxic gas has come a long way, from the trenches of the 1st world war, when a simple damp pad was used to protect soldiers from the effects of Chlorine gas. Today, there are a multitude of



NH-15 during trial



Camlock enhanced RPE



Younis Al-Hinai checking

ability to filter out 4400ppm H<sub>2</sub>S. In areas where the concentration of H<sub>2</sub>S in the fluids is very high and a release could cause immediate fatalities, (Red and Yellow Zones) supplied air RPE will continue to be provided.

respiratory filters which offer protection against countless different gases.

There is a common problem for all filter type escape equipment, and that is the presence of a beard! Beards and stubble push the protective face piece away from the wearers' face, which can allow contaminated gas into the hood or mask. Long hair also has the potential to allow gas into a hood.

PDO needed to ascertain where filter hoods can be employed, and where supplied air equipment must still be used.

That is why PDO engaged a specialist independent testing organisation called Pro-Qares, from The Netherlands, to conduct the filter hood trials.

There were 3 weeks of trials, where over 100 volunteers tested three different hoods. 4 different groups were identified; Clean Shaven, 1 week facial hair growth, Full beard and Long Hair.

Each individual had their face measured, to ensure a cross section of facial sizes were considered. Each was trained to don the equipment in line with manufacturer's recommendations. The volunteers spent 20 minutes with each hood conducting exercises such as walking, running, and climbing

ladders inside a Marquee which was filled with an aerosol of medicinal grade oil.

The measurements were taken using a 'portacount' machine which is in a backpack worn by the test volunteers. It measures the numbers of particles in the nose cup of the mask every second and records it. The external concentration is measured by a separate device on regular intervals.

The results are then averaged per activity, and person within their category. Based on the ratio of particles inside the mask versus outside the mask we get a Protection Factor. This Protection Factor, known as the Simulated Workplace Protection Factor can then be used to identify where PDO can deploy the Filter Hoods and where an supplied air RPE is required.

In addition, all the volunteers were asked to provide their feedback and notes were taken during the trials. All the hoods suffered from the same issues of condensation and heat build up inside.

So what's the current arrangement for our facilities? As a result of the trial, we will use the 'Avon NH-15' hoods in our Emergency Planning Zones (EPZ), which are areas which surround Critical Sour Facilities, and also in our Sour Facilities. This is based on their

The 'Avon NH-15' hoods are rated via their standards for 40mins duration, and the manufacturer says they can be worn for longer durations, however, given the issue with heat and condensation as evidenced at the trials, it is advisable to remove the hood as soon as it considered safe to do so.



**We have some specific information from the trials for Women working on site.**

**Before the emergency:**

- Ensure you have no hair pins in your hair which can tear the mask.
- Ensure that your hairstyle does not limit your ability to don the mask, or impair the seal. A large 'bun' can make it very difficult to put the mask on. Long untied hair can also be difficult to clear from the mask seal. A simple ponytail or plait is the preferred hairstyle.