

# Health and Safety News

4th Edition

## Edition

### Bio Gases and Confined Spaces.

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#### 6 things to look at around your business over this next quarter:

1. Is your fire risk assessment up to scratch?
2. Have you documented your last Directors audit and have findings been put right.
3. Are all future actions from your risk assessments been carried out
4. Is the staff training history up to date? How do you ensure that all training is current.
5. Is signage adequate, clean and in all required languages
6. Have smoke, fire and gas alarms been checked and is emergency lighting working and adequate? Have you recorded any issues?

If asphyxiant gases are not being produced in great quantity then only a small amount of air flow is required to keep the area safely ventilated. However if you start with a high concentration of gas or you are producing it in significant quantity clearing any hard to reach areas such as corners and inspection pits can be very difficult.

Depending on whether the gas is lighter or heavier than air will either shift the problem to the roof or the floor and the gas will flow just like it is an invisible fluid. The overall concentration might appear to be low but beware as pockets can accumulate which will present very real dangers for anyone entering the wrong place without the correct equipment.

The density depends on what the gas is and how hot or cold it is. Compressing a gas such as pumping up a tyre makes it hotter, gas that is leaking from a leaking pipe or cylinder will cool as it absorbs energy from its surroundings. So though Methane has around half the density of air a fractured gas main creates a pool of cold gas in the immediate area that increases the risk of ignition.

#### Breathing, how hard can it be?

Breathing is not something that we are consciously aware of so most people assume that they will be aware when things start to go wrong. Breathing is a complex process and sometimes you can feel when things are going wrong for example when you are doing your PADI diving course and you try taking a breath from the air tank with the valve turned off. Breathing in gases such as CO<sub>2</sub>, Argon, and Nitrogen will render you unconscious without you being aware of anything.

How much you breathe will depend entirely on the carbon dioxide levels in your blood and unless you inhale an irritant or something smelly your brain will try to automatically adjust whilst keeping you blissfully unaware of any impending problem. It won't think of alerting you. As that is what your canary should be doing when it falls onto the floor of its cage.

As methane builds in a room, it begins to take the place of oxygen. When oxygen levels decrease to a point where they represent less than 18 per cent of the air in the room. When this happens, an occupant of the room may begin to feel slightly dizzy and experience a headache. At first, your heart rate may quicken and you may begin to have some loss of coordination. As levels of methane rise further and oxygen levels are depleted, you may begin to feel fatigued, and have emotional upsets and trouble breathing. If not removed from the room, you may begin to get nauseous and be unable to move. Oxygen concentrations of 6 per cent or lower can cause death. These effects may occur faster if you are exerting yourself in any way while the methane is filling the room.



The forces that are unleashed by the build up of gases can be catastrophic as demonstrated in this picture from a facility in Germany in February 2011.

Those of you diligent readers to these fun filled newsletters will notice that this edition is not about competence as previously billed! **That is not because we could not find any!** It was more that we wanted to extend our readership to the Bio Gas sector of the REA as they are closely linked with the ORG members.

In addition since the last edition here have also been several large Fires on waste sites and we thought that should also be covered as.

### Promoting Health & Safety throughout the Organic Waste and Biogas Industries

The UK biogas industry is growing rapidly. With the increase in the size and number of biogas plants there will be increased risks and an increased need for safety awareness. The potential risks within the biogas industry have been demonstrated by several incidents that have occurred on sites in the recent past.

Our colleagues in the Organics Recycling Group (formerly AfOR) have been successfully promoting health & safety for several years and have published a safety manual for composting sites. With their experience in this area it makes sense for them to increase the circulation of their quarterly health & safety newsletter to cover the Biogas Sector Group and we would encourage our members to engage with various ORG. This newsletter is edited by Stuart & Louise Etherington of the Business Health Partnership who are ORG approved health & safety consultants.

In addition to this newsletter ORG brought several other health & safety initiatives to the REA following the merger with AFOR twelve months ago. These initiatives include a health safety working group, engagement with the HSE WISH forum, quarterly accident & incident surveys, a dedicated annual health & safety conference and several affinity schemes which give REA members access to specialist consultancy, health and insurance services at preferential rates.

Whilst there is significant legislation relating to the biogas industry it seems reasonable to assume that if there are continued incidents then there will be an increase in the legislative burden for the industry. Members wanting further information on the ORG health & safety initiatives should contact Gordon Thompson ([Gordon@r-e-a.net](mailto:Gordon@r-e-a.net) or 07584 253 733)

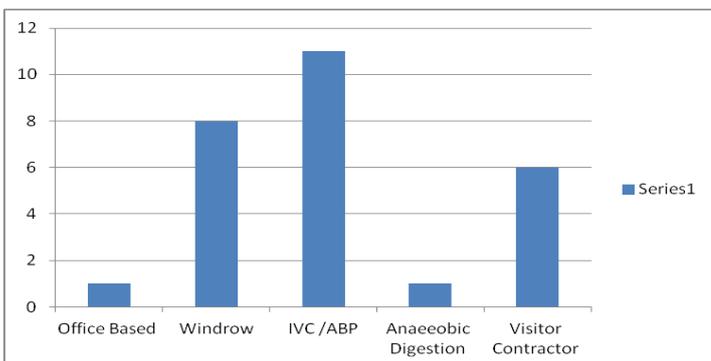
### The Organics Recycling Group of the Renewable Energy Association; quarterly health & safety monitoring survey Quarter 3: 2013.

We received twelve responses to this survey, these responses covered a total of 629 employees, four (33%) of which showed no accidents or incidents occurring on site. There were a total of 29 accidents reported, two of which were reportable under RIDDOR (over seven day absence). The incidence rate for RIDDOR reportable injuries was 317 accidents (per 100,000 employees) which compares favourably with the HSE reported figure of 610 incidents of over seven day absence (per 100,000 employees), No diseases or dangerous occurrences' as defined under RIDDOR were reported. The RIDDOR reportable accidents were both within the over seven day absence category and included one impact related injury and one slip/trip/fall.

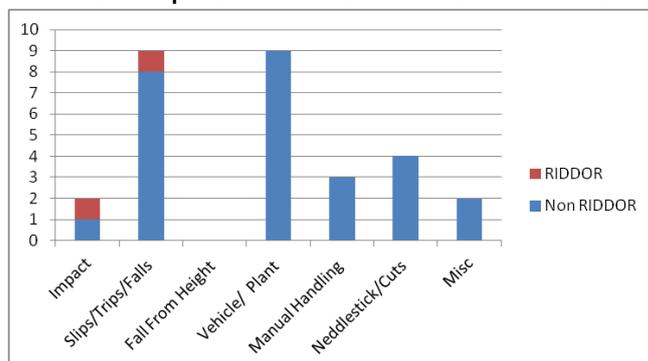
Once again the highest number of accidents 11 (40%) occurred with ABP/IVC operations with windrow operations being only slightly less at 8 (30%).

We would like to thank all those who responded to this survey and encourage all members to respond to future surveys. We cannot stress highly enough the importance of the ORG gaining increased participation from industry to build our knowledge of the H&S issues which are impacting us the greatest.

**Table 1 Reported Accidents Resulting from Different Activities**



**Table 2 : Reported Accidents and Causation Factors**



## Fire risks on waste sites?

So sitting comfortably in your office one sunny afternoon listening to the birds singing writing your next tender document for another 10,000 tons of waste. Your phone rings its a slightly out of breath sight manager who says "Get down here quick we have a fire" You walk out of your office and see the smoke in the distance and realise that it is serious but still hope that its not your site as you have done everything you can to prevent a fire. Haven't you?



I suggest that you carry out a Fire Risk Assessment for your business. These do not need to be difficult but they are a legal requirement and the Environment Agency are also expecting to see these now on their inspections due to the high number of waste type fires over the last 12 months.

1. Walk around the site firstly making a note of all the sources of Ignition, Fuel and Oxygen sources.
2. Evaluate who in and around your premises is also at risk, think about your boundaries and prevailing wind and smoke etc. Will the general public be affected or Night staff, Visitors etc.
3. Now think about the likelihood of a fire starting, where/ how it might start and combine that with section 1. What is then the risk to people from that fire can they escape easily to safety. What can you do to remove or reduce the likelihood of that fire starting in the first place. Then protect people by providing precautions such as smoke alarms/ fire alarms and extinguishers etc. Always a good idea to have extinguishers at the top and bottom of the stairs for example.
4. Now it is time to record the major findings that you have found and the action taken with timescales for improvements. This is important should you have an audit to show progress. Now would be a good time to discuss and share your findings with other staff members. When that is complete produce an emergency plan that identifies the areas that might be significant to the Fire Brigade such as Gas isolation valves, electricity into the buildings, fuel storage, gas storage areas and last but not least a reliable source of water.
5. Review your Fire Assessment annually or when you change anything within your business for example staff numbers, Machinery etc

### **What do I need to do for my Fire Risk Assessment**

1. Identify all Fire Hazards
2. Identify People at Risk
3. Evaluate remove or protect from Risk
4. Record Plan and Train
5. Review your fire risk assessment

I hope that this is useful don't forget the environmental factors either! Have a plan to bund the area whilst the Fire Brigade are spraying water over your machine as it leaks oil and diesel and heads towards your lagoon!

## A Note from Chris Jones **WISH**

The Waste Industry Safety and Health forum (WISH) held its first industry summit meeting in February 2013 and published what has become known as the "Roadmap" strategy and plan of work to improved health and safety across the sector in June 2013.

Even before the "Roadmap" was published WISH was active in establishing work groups to tackle the key challenges that emerged from the summit meeting.

In some case the work which the industry had identified as being needed was entirely new. In many other cases there were already working groups seeking to talk the issues, albeit that these were geographically localised, or were addressing only a specific facet of a much larger issue.

Where the work was new WISH has sought to establish a working group to refine the issue to be resolved and to then work towards that resolution.

Where there was already work taking place WISH has sought to bring working groups together and in some cases provide the 'umbrella' under which the work of smaller groups can be communicated and combined to provide the solution.

WISH working groups are currently active in considering and preparing guidance in the areas listed below. Some of the groups (the "Leadership" group for example) are well progressed and at the point of publication, others ("Competence" for example) are in the process of formation.

If you are interested in any of the areas listed below and are prepared to contribute to the work of WISH by sharing your knowledge and helping us to provide pragmatic, practical and accessible guidance for the industry that makes a real difference in saving lives and avoiding suffering, WISH would like to hear from you.

WISH can be contacted via the HSE website at the following address:  
[wasteandrecycling@hse.gsi.gov.uk](mailto:wasteandrecycling@hse.gsi.gov.uk)

Further information about WISH can be found at : [www.hse.gov.uk/waste/wish.html](http://www.hse.gov.uk/waste/wish.html)

Current WISH working groups include: Safety Leadership; Waste Industry Competency; noise from single stream glass collection; fires at waste and recycling sites; single man collection vehicle operations; safety in metals recycling (metals sector); Worker engagement; Supporting and communicating with SME's; health surveillance for waste operatives (includes treatment plants); safety in organics treatment (Organic's sector)

### In the next edition

This next edition will be looking at Competence, Directors and staff responsibilities and if there is space and time what is reasonably practicable?



*Chris Jones has worked in the waste industry for the last 25 years advising and managing Health, Safety, Welfare, Quality, Environmental, and Transport issues.*

*Chris Jones is a Member of the Chartered Institute of Waste Management.*

*Chris has been involved with the evolution of WISH from the concept stage in 2001 and was honoured to become the first elected Chairman of WISH in 2008.*

Check out this quarter's Tool Box Talks at the Members section on the ORG website.

1. Fire Risk Assessments

