

# MEMBERS' NEWS

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## CEA Meeting Dates:

**Virtual Meetings:** We are now hosting all of our meetings online, via different streaming platforms; please let us know if you are interested in joining any of our upcoming meetings, since the conference video code will need to be supplied.

**Friday 22nd May** BG11 Water Tube Boilers Development Meeting

## Members News:

Paul Whitehead's "MCPD - how to get a permit" training course is nearly ready for on-line delivery, for further information please contact the CEA.

**Read Page 4 & 5** for an article on the impact of Covid-19 on Boiler Water Treatment **By Deep Water Blue.**

**SAACKE** has provided an article detailing managing emissions in large boilers and how to ensure your system is compliant with BAT (Best Available Techniques) standards by 2021, **read page 6 & 7 or further information.**

## Training Update

### I-GAS

I-GAS Training Providers are developing their online training to deliver the two day "Basic Gas Awareness Training", prior to any further I-GAS training you may do at a later date. If you would be interested in attending one of these courses please let us know.



### Steam Boiler Water Treatment

Three CEA Steam Boiler Water Treatment training courses (SBWT) had been planned for this year across the UK which unfortunately have had to be postponed, but the good news is that two approved training providers have this available and are delivering it online so we may well host the CEA SBWT course online and see how that goes too, if you are interested please contact the CEA for more information.

## An update on You or Your staff's BOAS accreditation.

During this pandemic we have been encouraging you to continue with your BOAS accreditation when its due for renewal, you do get a notification at 12 months prior to the expiry date of your accreditation so you have time to book on to a two day course with your chosen training provider.

However, under the current lockdown your accreditation needs to continue and we would like to ensure that we avoid overloading the scheme once the pandemic and lockdown has passed, therefore we would encourage you to do your renewal **now online** and then to take the assessment with **one of the BOAS Assessors.**

If you want more information on how to do the renewal please contact CEA and we will put you in touch with the Training Providers who are hosting the renewal, between the Training Provider and the CEA we will appoint an Assessor to go through the test and assessment with you.

Also the I-GAS Training Providers are developing their online training to deliver the two day "Basic Gas Awareness Training", prior to any further I-GAS training you may do at a later date.

You will have seen from the CEA news and other emails that the HSE will adopt a pragmatic and proportionate approach towards enforcement action for non-compliance with statutory requirements which are directly attributable to the coronavirus (Covid-19) outbreak. So where there exists a requirement for staff to be trained and competent to undertake their work activities, this requirement will not be relaxed under the current outbreak.

Although BOAS training and accreditation of itself is not a legal requirement for boiler Operators or boiler operations Managers it will help employers demonstrate that they have met their legal duty in providing suitable and appropriate training and assessment.

HSE "As the manager of a workplace, you have a duty to manage the risks associated with that workplace. If there is a boiler installation on your premises, you must ensure it remains safe." (INDG436)

## BOAS Online For The First Time

By David Kilpatrick - Director, CEA

The first BOAS virtual training course took place last week, with M&M Training using Zoom as the method of communication, which has been very successful. In a former life, I spent many years delivering technical training and it goes without saying that I was nervous and lacked the confidence in this type of training for such an important task as managing and operating steam boilers. My view has been and still is that you can't beat face to face training and assessment with the interaction that brings within the group of candidates, the Trainers and the Assessor, especially at the bar or during dinner at the hotel.

However, under the current difficult situation with this pandemic and trying to keep the BOAS training and accreditation available for both an initial BOAS Category 2 courses and for the "Five Year Renewals" demanded by the scheme I am happy to endorse this virtual training until the situation changes and we are able to gather in groups again...



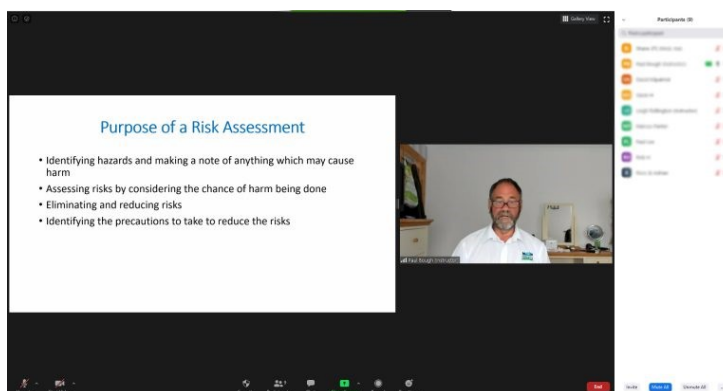
It took Paul Bough and his team five weeks to modify their training materials into a suitable format for online training, they then had to test their own training using their staff as guinea pigs and make any necessary changes.

Course literature is emailed out prior to the course and printed/ viewed electronically by each delegate. They also had to ensure that the candidates filled in the correct application form and supply the appropriate evidence to prove that the candidate did have prior boiler operational experience.

All that said, I sat in on all three days of the course - it was very well delivered, engaging and extremely informative, so congratulations to them for this very successful effort. My reservations had included the length of time you could hold people's attention when online looking at the screen and listening to the presenter. I had intended carrying on with my normal day job and just listen in from time to time, but it was so interesting that I stayed on the course throughout and I'm now trying to catch up with my own work. We did have one minor hiccup with the IT but that was very quickly resolved by Shane, M&M's technical guy, who was constantly monitoring the course and managing the Zoom call. All of the 10 sections of the BOAS training were delivered in depth, in fact to make it a little easier to deliver M&M had broken it down into 12 sections and the boiler water treatment element was also covered in more detail.

We now have to carry out the assessment process online and see how that works, two Assessors have been appointed to carry out this first group of online assessments and once this is done we will be reconvening all of those involved and asking for their feedback on how the whole process worked for them.

Other BOAS dates are in the diary at M&M for the next courses online and several other CEA approved training providers are looking at how they can deliver BOAS training online too. Some clients are still asking for face to face training and some of this is starting to happen as the restrictions are being loosened by Government.



## Candidate Testimonial



"As a newly appointed manager, I recently attended the virtual BOAS Cat 2 – Shell Type Steam Boilers delivered on Zoom. The course was expertly delivered by M&M Training Services and governed by the CEA. The course was extremely informative and gave us great insight into the daily operation and management of boiler house operations and steam usage.

The knowledge of the trainers Paul Bough and Leigh Ridlington was second to none and I would highly recommend the course to boiler operators of all levels. The course really does deliver information we should all understand as Boiler Operators, by refreshing the basics and underpinning your knowledge. Thank you to M&M Training and to the CEA for your guidance and support throughout" – Ross Neale – Engineering Manager



## HSE News:

### Working safely during the coronavirus outbreak

**HSE's new guidance will help you keep workers safe (COVID secure) during the outbreak.**

It covers the steps you should take to protect workers and others, in line with your normal legal duties in managing risk and risk assessment at work.

The following guides will help you manage the risk from coronavirus in your business during this time:

- **Working safely during the coronavirus outbreak - a short guide** This guide covers who should work, protecting those at higher risk, getting into and leaving work, organising work areas, and good hygiene.
- **Talking with your workers about working safely during the coronavirus outbreak** Guidance on consulting your workers and measures to prevent coronavirus in your workplace and to make it COVID secure.

The Department for Business, Energy and Industrial Strategy (BEIS) has published guidance to help employers keep their workplaces operating safely during this time.

**The latest guidance** covers eight workplace settings:

- construction and other outdoor work
- factories, plants and warehouses
- other people's homes
- labs and research facilities
- offices and contact centres
- restaurants offering takeaway or delivery
- shops and branches
- vehicles

Many businesses operate more than one type of workplace, such as an office, factory and fleet of vehicles. You may need to use more than one of these guides as you think through what you should do to keep people safe.

More coronavirus-related updates and advice from HSE

**HSE has published a range of guidance, which you may find useful.**

It includes information on:

- **RIDDOR reporting of COVID-19**  
When, what and how you should report under RIDDOR
- **Fit testing face masks**  
Guidance (and a video) explaining how to put on tight-fitting RPE correctly
- **Protecting homeworkers**  
This includes a short video showing how you can achieve a reasonable posture, while temporarily working with display screen equipment at home

For all the latest information and advice **visit HSE coronavirus microsite.**

## IGEM Gas Quality Specification

The following documents have been drafted for review:

- Draft for Comment of IGEM/GL/10 – “Gas Quality Specification for Conveyance of Group H Gases of the Second Gas Family”
- A key Step on the Pathway to Net Zero Emission – EVIDENCE REPORT
- IGEMs Governance of Industry recognised Standards-Gas Quality and
- the associated comment reply form.

The Draft and associated papers can be found here: <https://www.igem.org.uk/technical-services/comment-on-draft-standards/>. The draft standard has to be read in conjunction with the evidence report and IGEM governance and any comments are to be put into the comment table and forwarded to IGEM by 4pm on 30<sup>th</sup> July 2020.

We have been informed that the important document is the evidence report as there are many issues left unanswered, especially in the commercial/industrial sector, regarding the range of Wobbe Index, the speed of change from one gas specification to another and the fact that engineers on site will not know accurately what the gas specification is at any point in time, causing difficulties in setting up the plant..

IGEM wish to make it as easy as possible to issue the draft to Members, please email CEA with attachment complete or forward your comments.





## The Impact of Covid-19 on Boiler Water Treatment

*May you live in interesting times...* and these are possibly the most interesting times that most of us will have lived through. The Covid-19 pandemic has torn through the world wreaking devastation throughout and forcing preventative measures never before seen on such a scale. The human cost is heartbreaking with the celebration of our healthcare workers and other frontline staff who are risking their lives daily being quite rightly at the front of our minds.

As lockdowns progress and we start to find our feet in this 'new normal' other effects become evident. With people limited as to what they can do and the shutting of many businesses, it is the suppliers of products and services who then have to review their operations. Difficult decisions have been made and continue to be made while the politicians plan and discuss the path out of the lockdowns with restrictions likely to be in place for many months to come.



As boiler water treatment specialists, our role here, is to help assist our customers in making the correct decisions for their plant. This starts with laying up the systems correctly, primarily to minimise the possibility of corrosion, and then when needed, bringing them safely back into service.

Some of the challenges here come from the uncertainty as to how long this lockdown and consequent business downturn will last, and it is the answer to this question that then helps define the correct method of storage of the systems. Are you looking at a 2-week shutdown, a month, longer? When you come back online will you be going straight to full production or are you going to be running at say 2 days a week as the order books are re-established?

You may already have found yourself in this situation and have had to make decisions quickly as to what you should be doing with regards to the boiler water treatment. Simply turning the unit off, whether it be a boiler or steam generator and then hoping, or even assuming, that you can just turn the systems back on when needed, is a recipe for disaster within your plant. Often in this scenario, a variation on boiler wet lay-up will have been used and advice should have been sought from documents such as BG04, from the CEA and ICOM, or perhaps even your water treatment provider, as to how to best protect your system during these uncertain times.



Using the correct method for laying up the boiler is crucial in order to ensure that corrosion is kept at bay. An incorrectly laid up boiler will cause significant difficulties with waterside corrosion and once corrosion sets up, it is very difficult to remove it. Once the COVID-19 restrictions are lifted and production is to come back online, the delays that could then be caused due to the failure of any part of the boiler system, could have devastating consequences for the site's output and ultimately the survival of the business.

The main options with regards to layup are either a dry lay-up or a wet lay-up and there are advantages and disadvantages to both. With a dry lay-up, you have a minimal amount of monitoring once the lay-up has been completed, however, it takes longer to bring the system back online which may not be suitable for all applications. We are seeing a significant number of our customers in this situation going down the path of wet lay-up. This, if carried out correctly, will preserve the system and allow for a *relatively* swift return to service as required.

There are already documented procedures in place for the waterside treatment of systems which are offline for varying lengths of time. Monitoring is still required as chemical treatment reserves will degrade as the period of lay-up continues and additional dosage will be required to ensure that treatment levels remain sufficient, in order to give the necessary system protection. It is also important to consider the condensate lines, as pools of cooled condensate will result in extremely aggressive conditions and any condensate lines should be fully drained and left dry during the system lay-up.

For the systems on your site, any chemical treatment should be kept at a minimum in dosing tanks to preserve freshness and any mix should be made specifically according to usage requirements. It is also important to maintain system alkalinity during prolonged shutdown periods to prevent any acid attack or breakdown of the magnetite protective layer.

Should the system be offline for greater than 1 month the correct lay-up will always be to dry store the boiler or steam generator and your boiler manufacturer will have specific guidance for this around the plant that you have on-site.



Once the decision is made to bring the systems back into service it is critical that this is carried out correctly. The boiler start-up procedure should follow the manufacturer's guidelines along with any site-specific procedures which are in place.

Before firing up your steam raising plant you also need to carry out some basic checks on the feedwater system. Are the chemical pumps operational and free from any crystallised product in the dosage/suction line or pump head? Is the softener working correctly/ have you manually regenerated each column? Is the immersion heater for the feed tank operational (if present) to allow for good hot well temperatures before the steam sparge and condensate return are functioning? Walk your plant and determine the points that need to be checked for your system to give you the best chance of a successful reinstatement of steam production, whilst protecting your plant. It is also likely that the chemical reserves will require boosting before the systems come online to give the required protection to the feed system and allow reserves to rise quickly within the boiler for optimum protection.



Now your systems are back online it is important to treat them correctly for the usage that they will have going forward. If you are back to normal operation and production then maintaining your treatment reserves at your normal parameters will be sufficient. However, should you be coming back into service intermittently it will still be important to manage this correctly and guidance is in place to assist for both steam generators and boilers.

Following these recommendations should allow you to resume operation with minimal disruption to your services and maintain the integrity of your plant when circumstances allow.

If you need any help, please get in touch with us at Deep Water Blue Ltd.-Specialists in Steam-Tel-08704602980 or mail to [info@deepwaterblue.co.uk](mailto:info@deepwaterblue.co.uk)

[www.deepwaterblue.co.uk](http://www.deepwaterblue.co.uk)



**NO<sub>x</sub> levels below 30mg are possible for large combustion plants (≥50 MW).**

# Compliance with BAT standards by 2021

The specifications in the European Union's 2017 leaflet mean a significant reduction in NO<sub>x</sub> levels for large combustion plants (≥50 MW). The exact values will be transposed into national law by 2021, although the mandatory limit values have not yet been definitively set. The European Union's 'Best Available Technique' (BAT) reference document on this subject includes the emission levels listed in the below table as the state of the art.

## Achievable NO<sub>x</sub> emissions according to the European Union's BAT reference document:

Firing capacity [MW]	NO <sub>x</sub> -Emissions as average daily value at 3% O <sub>2</sub> [mg/Nm <sup>3</sup> ]			
	Existing plants		New plants (from 2014)	
	Heavy oil and fuel oil	Natural gas	Heavy oil and fuel oil	Natural gas
< 100	210 - 330	85 - 110	100 - 215	30 - 85
≥ 100	85 - 110		85 - 100	

The table shows that gas-fired existing and new plants are affected by a reduction in permissible NO<sub>x</sub> emissions. The operators of former heavy and fuel oil boilers will therefore face considerable challenges despite a conversion to natural gas, as the sometimes very high combustion chamber heat load of existing plants already makes it difficult to comply with the legal limit levels.

In general, two different technical approaches to reducing NO<sub>x</sub> emissions are known and in use: (1) Primary measures which are based on a modified combustion management system (low-NO<sub>x</sub> technology) and (2) secondary measures which are downstream of the combustion system (flue gas cleaning). As a rule, secondary measures are associated with high investment costs and additional operating costs, and so many plant operators prefer to use low-NO<sub>x</sub> combustion systems, which are associated with significantly lower costs. Although existing plants with

low-NO<sub>x</sub> technology can currently still be operated sufficiently safely below the legal limits, the BAT values in the table underline that the NO<sub>x</sub> requirements for large combustion plants will increase in the near future.

Even now, emission limits in some countries are much stricter than in Europe. China in particular should be mentioned here, with demanding NO<sub>x</sub> emissions below 30 mg/m<sup>3</sup> for gas-fired new and existing plants in the Beijing area. The current low-NO<sub>x</sub> technology is reaching its limits here. The typical primary measures for NO<sub>x</sub> reduction, such as increased recirculation of exhaust

gas or high excess air, lead to rising operating costs of the blowers and efficiency losses due to increased exhaust gas losses (see ordinance BImSchV of the Federal Emission Control Act in Germany) and in some cases even to unstable operation of the combustion plant. Only the most advanced technology and the coordinated combination of various primary measures can reliably map

these low NO<sub>x</sub> emissions over the entire output range.

For more than 80 years, SAACKE GmbH based in Bremen, Germany has been continuously developing new and more efficient combustion technologies in the



Image source: SAACKE GmbH

combustion sector in order to reliably and safely meet the constantly increasing requirements resulting from falling emission limits. Already today, a large number of SAACKE GmbH firing systems are equipped with the so-called Ultra-Low-NOx technology, which can also safely fall below the strict emission limits in China. Even heat generators with up to 60% higher combustion chamber heat load (compared to conventional heat generators) can be operated safely below the legal limits with this technology.

Figure 1 shows an example of this: Here the exhaust emissions achieved over the output range for a large combustion plant in China with a highly loaded furnace are listed.

Although the current emission regulations in Europe for existing plants are still far away from these 'extreme' limit values by our standards, the current BAT reference document clearly shows the direction of the future targets of the European Union, especially for gas-fired new plants. And: The BREF (BAT reference document) is to be transposed into national law as early as 2021 (13th BImSchV in Germany).

The requirements that large combustion plants are expected to meet are a challenge - but they can already be solved today through new technologies and individual assessment.

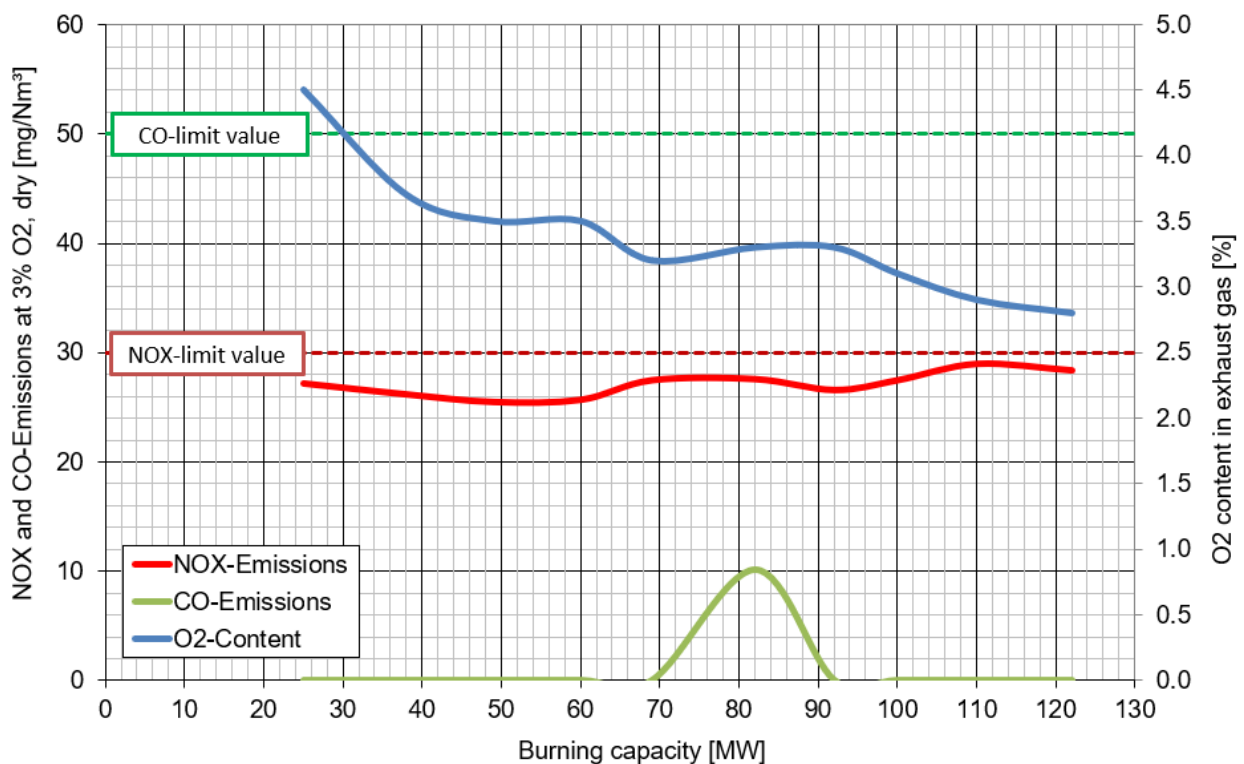


Figure 1 Exhaust emissions achieved for a high-load large combustion plant in China



**Author: Dr. Ing. Christopher Rosebrock, Development & Process Engineer, SAACKE GmbH**  
SAACKE Combustion Services Ltd,  
Langstone Technology Park,  
Langstone Road,  
Havant, Hants PO9 1SA.  
Tel: +44 (0) 23 92 333900  
Email: [ukadmin@saacke.com](mailto:ukadmin@saacke.com)