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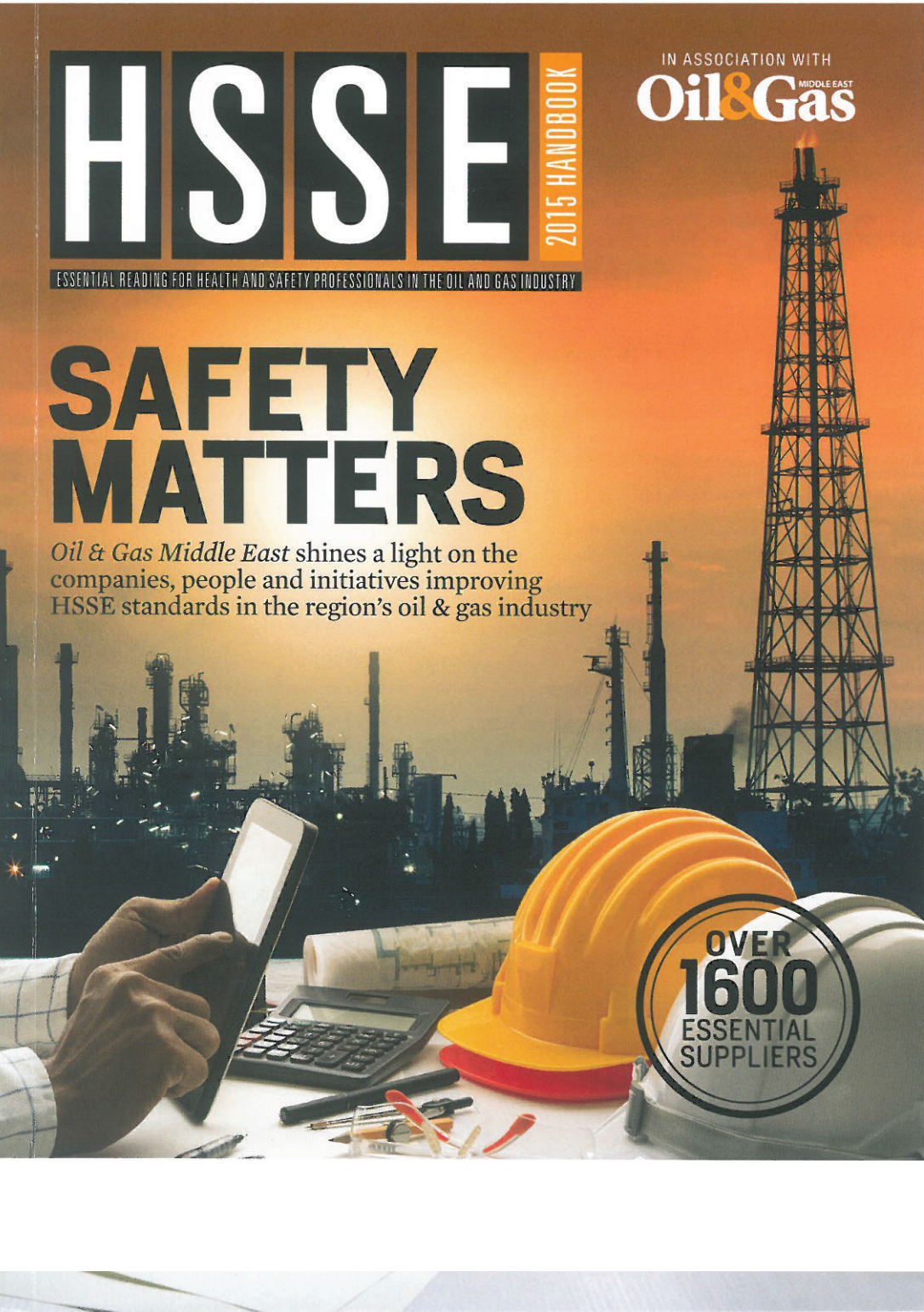
2015 HANDBOOK

IN ASSOCIATION WITH
Oil & Gas
MIDDLE EAST

ESSENTIAL READING FOR HEALTH AND SAFETY PROFESSIONALS IN THE OIL AND GAS INDUSTRY

SAFETY MATTERS

Oil & Gas Middle East shines a light on the companies, people and initiatives improving HSSE standards in the region's oil & gas industry



OVER
1600
ESSENTIAL
SUPPLIERS

OCCUPATIONAL HEALTH

Occupational health is an important part of companies' health and safety culture

WORDS: SLAVKA ATANASOVA

Health and safety is one of the most important topics in oil and gas, which is not surprising at all, given the dangerous environment in which workers operate on a daily basis. From harsh chemicals exposure, to fire accidents, electrocution and even radiation, the list of hazards is long and terrifying. To minimise risk, companies have put tremendous effort in implementing best practices and procedures and making sure they are being followed by their employees.

But while awareness of occupational health and safety is at an all-time high, knowledge of occupational diseases, an important part of occupational health, is more limited.

"The problem area I see is on the occupational health side. There is a general lack of understanding of occupational diseases in most companies," says Theuns Kotze, managing director for the Middle East and North Africa at BSI. Kotze defines occupational disease as "a pathological manifestation on one or more organs as a result of an occupational exposure to a substance that affects that organ".

"If you breathe a lot of toxic fumes, it would affect different organs; it might affect your kidney, your liver, your lungs etc. There is always a target organ involved and sometimes multiple target organs depending on the substance."

Low skilled workers are in the highest risk group of developing an occupational disease, as they normally get the highest levels of exposure, Kotze explains.

"[Workers] that actually sandblast the vessels work on a contract basis — one month they are on one job, next month they are on another. They move from contractor to contractor, from plant to plant and those are the ones who get it; not the management, not the engineers."

Furthermore, occupational diseases are very hard to detect and require a certain type of specialist to diagnose. In this region, very few companies, however, have such specialists in-house and that is something that many believe needs to change, for workers wellbeing to be addressed adequately.

"In the Middle East I have met only one occupational medicine practitioner — in Qatar at an oil and gas company.

"But a medical doctor that is qualified in occupational health that knows how diseases work and has

"IN THE MIDDLE EAST I HAVE MET ONLY ONE OCCUPATIONAL MEDICINE PRACTITIONER IN QATAR AT AN OIL AND GAS COMPANY."

THEUNS KOTZE, MANAGING DIRECTOR, MIDDLE EAST AND NORTH AFRICA, BSI.

got profiles of people and he knows what they have been exposed to... I do not think there is generally many around," said Kotze.

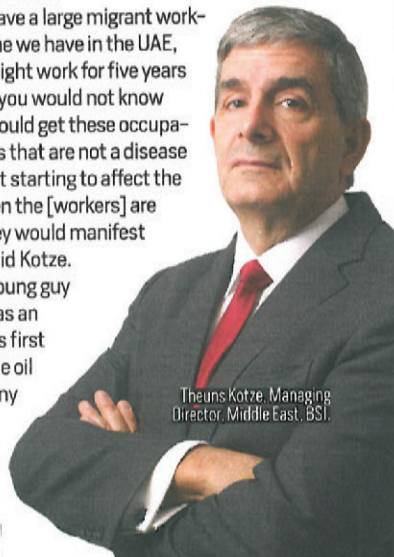
An occupational health practitioner would need to be able to check [workers] exposure on a daily basis and know if a disease has been caused as a result of exposure, he explains.

"When you are sick and you work in a refinery or an oil and gas company, whatever happened to you must actually come back to the occupational medicine practitioner of the company, who must look at it and see if there is a case for an occupational disease."

Unlike an injury, which can be diagnosed and treated almost instantly, a disease could take up to 20 years to develop. The intractability of occupational diseases is made worse by the fact that the vast majority of the oil and gas workforce is comprised of workers from overseas.

"When you have a large migrant workforce, like the one we have in the UAE, where people might work for five years and then leave, you would not know because they would get these occupational exposures that are not a disease yet; they are just starting to affect the organs and when the [workers] are 50 years old they would manifest themselves," said Kotze.

"Imagine a young guy starts working as an engineer and his first job was with one oil and gas company and [his] next job was with



Theuns Kotze, Managing Director, Middle East, BSI.

OCCUPATIONAL HEALTH

another oil and gas company and in various departments. He has got multiple exposures to substances over 15 years. The guy might be just 35 and then he gets liver cancer.

"They think maybe he was smoking or he was drinking too much. It is only a sharp doctor that would identify that this was an occupational exposure from the past that caught up with him.

"Now it is almost impossible to track back what his exposures were in the last 15 years in the different plants that he worked in, unless the company has got a very good occupational health monitoring system," Kotze says.

It is the company's responsibility, therefore, to ensure it profiles its workers for their overall health state before they join the company and records and preserves the his details.

"[They] need to take proper pre-employment medicals from them including a lung function test, a liver function test, a full blood count, all those typical tests that you would do in that industry because it is identified by type of exposure. If you work in a hydrofluoric acid plant in a refinery there are certain diseases that would manifest and there are certain organ functions that will be affected so you need to be tested specifically for those types of things that you have worked with in the past," said Kotze.

Sadly, not many companies have actually adopted such practice, and fewer apply it to all of its employees, who stand the risk of hazardous exposure. Apart from chemical exposure, radiation is another major occupational hazard that remains high on the radar.

"There is a lot of nuclear work being done in the oil and gas industry so a lot of people in the oil and gas industry get exposed to radiation. In a lot of cases in the work field of non-destructive testing a lot of X-rays are used to check pipelines and vessels, etc.

"A lot of those methods involve radioactive sources, specifically radium and cobalt."

While radiation is permissible within certain limits, exceeding those limits can often be a major cause for concern.

"The latest rules are that you have to wear a dosimeter, that will show whether

you have been exposed to radiation. But that's only after you have been exposed.

"If there is a suspicion that they have been exposed to other types of radiation, they have to go for a full body scan."

Although radiation workers are generally well-protected, oftentimes they get exposed to radiation higher than the permissible levels and by the time the examination is done, it might be too late, says Kotze.

Now you have to wear a dosimeter that will immediately alarm if there is exposure in the air and also measure how much it is. This is a much better way of doing it," he added.

Thanks to the technology available on the market the risk from radiation and all sorts of hazardous exposure can be significantly reduced.

"There are lots of smart measuring equipment that can actually tell you what range of gases present in an area and can tell you if there is any explosive gases present where you are. In confined spaces, now there are electronic devices that you can wear that will tell you if the oxygen drops it will tell you immediately. It can tell you also what radiation is present. There is lots of very smart equipment that can actually help you detect anything before it happens.

In addition, a great amount of personal protective equipment has become available to keep employees safe. But industrial hygienist, Ehsan Uddin, MScA, CRSP, says higher level controls are needed when serious health hazards are present.

"We cannot always rely on simple personal protective equipment (PPE) for protection of employees when there is potential for exposure to serious

health hazards. This is where the higher level controls and technological innovation play a significant role. For example, moving up from air purifying respirator to supplied-air respirator improves the assigned protection factor (APF) from 50 to 1,000 which improves the protection by 20 times (OSHA 29 CFR 1910.134).

"Better yet, technology can be used to eliminate the health hazard by engineering out controls. Technology also plays an



Ehsan Uddin, MScA, CRSP



important role in evaluating or monitoring the health hazards. Keeping up with lowered occupational exposure limit (OEL) requires innovation of sampling equipment and method."

In the hierarchy of controls, engineering control comes first and procedural control second with protective equipment taking the last place.

"As per the hierarchy of controls, administrative controls and engineering controls should be considered first. However, in reality it can be difficult to completely control a health hazard with just one set of control. Thus, we need to achieve a balance.

"If procedures or engineering controls can be designed to eliminate or control health hazards, this is the ideal situation. However, often that is not the case. We regularly have to supplement our safe work procedures with additional controls in the form of PPE. To achieve the right balance, the best approach is to work with the hierarchy of controls and determine the right mix based on the process, task and the hazard," said Uddin.

Just like safety, the effort for employee health protection has to come from both management and employees Uddin says.

"The first step is recognition of the hazard. A risk assessment process can certainly help. Employers need to setup programs to educate employees about the health hazards they come across every day and share with them what controls are in place to protect the employees. Employees also need to take initiative to learn about these health hazards.

"It is highly advised that employees review Safety Data Sheet (SDS) of any chemicals they work with and are familiar with the control measures.

Furthermore, employers could also benefit from a good occupational health culture, says Uddin.

"Some of the incentives for companies to keep a close eye on its occupational health practice includes: increased production and efficiency due to improved working conditions, reduced downtime from reduced claims and lost times, and last but not least "a healthier workforce is efficient and productive."

New occupational health and safety standard, due to be released in October 2016, will much improve the occupational health awareness across the region, Kotze believes.

Currently in its draft stage, the new standard will be called ISO 45001, after the international standard-setting body, which is also the body drafting it.

"We believe that oil and gas should have their own health and safety standard.

"We believe that through the ISO 45001, occupational health will get a more prominent position and a much more serious one. Of course it is a voluntary standard but this will be worldwide benchmark for health and safety and almost for all companies", said Kotze.

To obtain the certification, companies will have to "provide objective evidence that the standard's requirements are being met". David Smith, chairman of the project committee, said that ISO 45001 will insist that its rules and regulations are embodied in the overall management system of the organisation.

"ISO 45001 requires health and safety aspects to be part of an overall management system and no longer just an added extra."

This will require a much stronger buy-in from its management and leadership. It will also be a big change for users who may currently delegate responsibility to a safety manager rather than integrate this entirely into the organization's operations, he adds.