WORKING ON BOARD – DANGEROUS?

NOT DANGEROUS BUT THERE ARE RISKS

During the past few years there have been a number of headlines both bold and black bringing up the issue of the working environment of mariners. In 1995 Swedish newspaper Dagens Nyheter, for instance, wrote “Doubled cancer hazard for mariners”. Other newspapers followed suit. One paper went so far as to write a full page article with the headline “Seamen live dangerously”.

We would like to argue that this assumption is wrong. Work on a vessel is not dangerous! As long as you protect yourself against the hazards that do exist. For it is not without a risk to inhale gases from strong solvents or emissions from a filled oil tank or petrol tank for that matter. There are a number of other things which are unhealthy for you as well: If your hands are constantly soaked in oil, or if you smoke, if you have too much alcohol or eat too much fatty foods and if you stay immobile. All this affects your health in a negative way. The more risk factors you put together or expose yourself to, the greater the risk that you get cancer or cardio-vascular diseases. At the same time you should be aware that also the ones who refrain from these risk factors may get cancer anyway. This is a similar truth as saying that most people who work on tankers would never get cancer anyway even if they don´t use appropriate protective gear, work in poorly ventilated spaces and don´t bother about their diet and get too little exercise. There are enough people affected that can prove it to be a straight connection between certain types of cancer and the working environment in the engine room and on tank deck. We would like to eradicate this connection.

The main purpose with this brochure is not that you should understand that there are risks. The aim is that you should protect yourself better than you might today. If appropriate protective equipment is missing on board your vessel you should point that out immediately. Next time a study of this kind is made we do not want to see any risks whatsoevero-verrepresentation of seamen in the Cancer Register.

We have reached our goal if only one single life can be saved through this brochure. Have You thought that it might be your life?

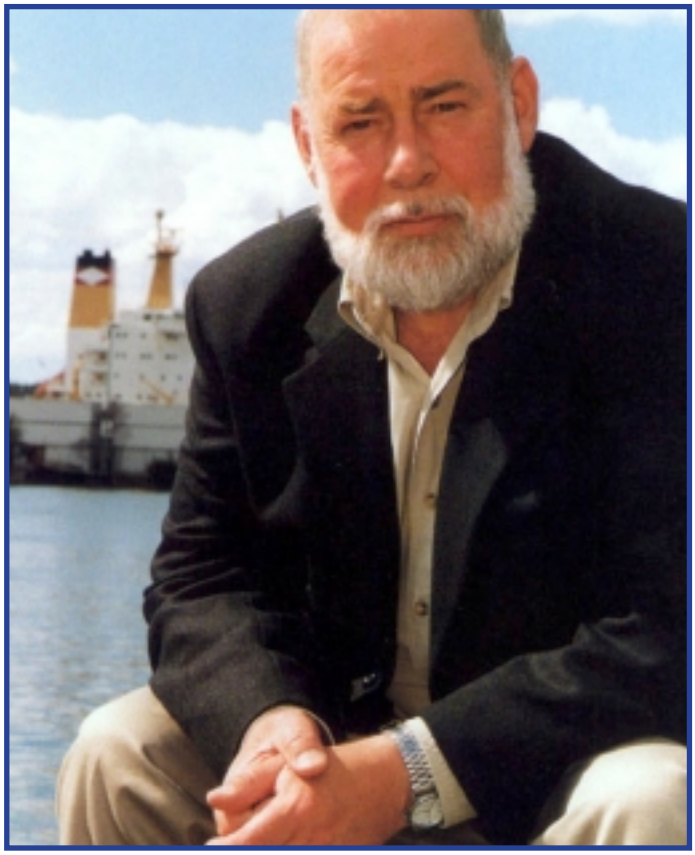
From the Maritime Joint Work Environment Council for Government Employees (Sjöfartens Arbetsmiljönämnd) we hope you will benefit from reading this brochure.

Jan Ifwarsson, Swedish Shipowner´s Association; Ola Nyström, Stena Line; Kim Iversen, Sea Partner; Tomas Sjöstedt, Sveriges Fartygsbefälsförening; Hans Holmquist, Svenska Masinbefälsförbundet; Göran Hansson och Jens Ole Hansen, SEKO Seafarers

PS As you well know there are other problems which involve your working condition, such as noise, vibrations, accidents, harassment, heat/draught and stress. In this brochure, however, we have focused on topics discussing the cause of cancer. If you have any further questions we recommend the book Better Working Environment – the Sea (Bättre arbetsmiljö – sjö) plus supplement, published by the Joint Industrial Safety Council (Arbetarskyddsnämnden).
The brochure Working on board – dangerous? is commissioned by the Maritime Joint Work Environment Council for Government Employees, a committee to improve the working environment at sea.

Texts: Berit Blomqvist. English translation: Linda Bradley. Source and expert advisors: Rolf Nordlinder and Ralph Nilsson, both scientists at Sahlgrenska University Hospital, Occupational and Environmental Medicine, Photos: Leif Hansson. All photos except for the ones on pages 3-5 have been taken on board Furetank´s vessel the Furenäs. Design: Informator AB. Print: Sandstens Tryckeri AB. **Further copies can be ordered from the Maritime Joint Work Environment Council for Government Employees, Box 330, 401 25 Göteborg. Phone: +46 31 62 95 25. Fax +46 31 15 23 13.**

CANCER MUST BE TAKEN SERIOUSLY



- I have no bitter feelings whatsoever. I´m just a bit sad that I had to leave my job which I liked very much, says Lasse Ljungström who has spent 25 years working at sea. He ended up with the diagnosis leukaemia.

- I had to prepare for the worst, but everything turned out fine!

Quite some time has passed since he found out that he was struck by cancer, something we think happens to others, but will never happen to personally.

- I was feeling a bit ill for a long period of time. I was tired and almost constantly had a cold, and I also had a rash and I generally felt out of balance. However I continued working and for each complaint I saw different doctors in various ports I visited. None of them found the real reasons. It was not until I was at home for a full summer that my doctor started suspecting diabetes. At that time a thorough investigation was carried out and it turned out that my whole immune defence was lowered. And if it was not diabetes it had to be leukaemia.

Since Lars Ljungström ignored the symptoms, the discovery of the disease turned out to be very dramatic and he had to be taken to hospital immediately in August 1985. It was not until in May 1986 that he could return back home.

- At that time not many people thought that I would survive. I managed thanks to a transplant of bone marrow from my brother. I was the oldest one out of four people who had a transplant on that occasion. Today I am the only one alive.

In 1985, 41 years old, Lars was a master of a coastal tanker and the father of a one-year-old son and a daughter of six.

- The chock really came afterwards. It was only then that I understood how close it was that my son never got to know his father. For a long time afterwards I was susceptible to the tiniest infection – which could have killed me - and I had to take tests to see how I was doing every week. It was a horrible time.

- But everyone around me helped out in a fantastic way and my employer supported both me and my family in the best possible way. Now afterwards when I know that I have recovered completely, I can even feel that there are positive sides to my disease.

- I was positively received within the health care system. I have learnt to value important things in life and care less about other things. I suppose it is easy for me to say this now when I am well again.

Lars Ljungström points out that employers he has worked for through the years have not been responsible for his cancer.

- First of all you can never know the real reason behind such a disease since there are so many explanations. Besides, in the 60s people were not aware of the risks. In those days we were scooping cinders with shovels. When we started to feel dizzy we just went out on deck in the fresh air for a while and then we went down again and continued. In the 70s we became aware of hazards, and in all shipping companies I have met since then owners have been concerned about a good working environment.

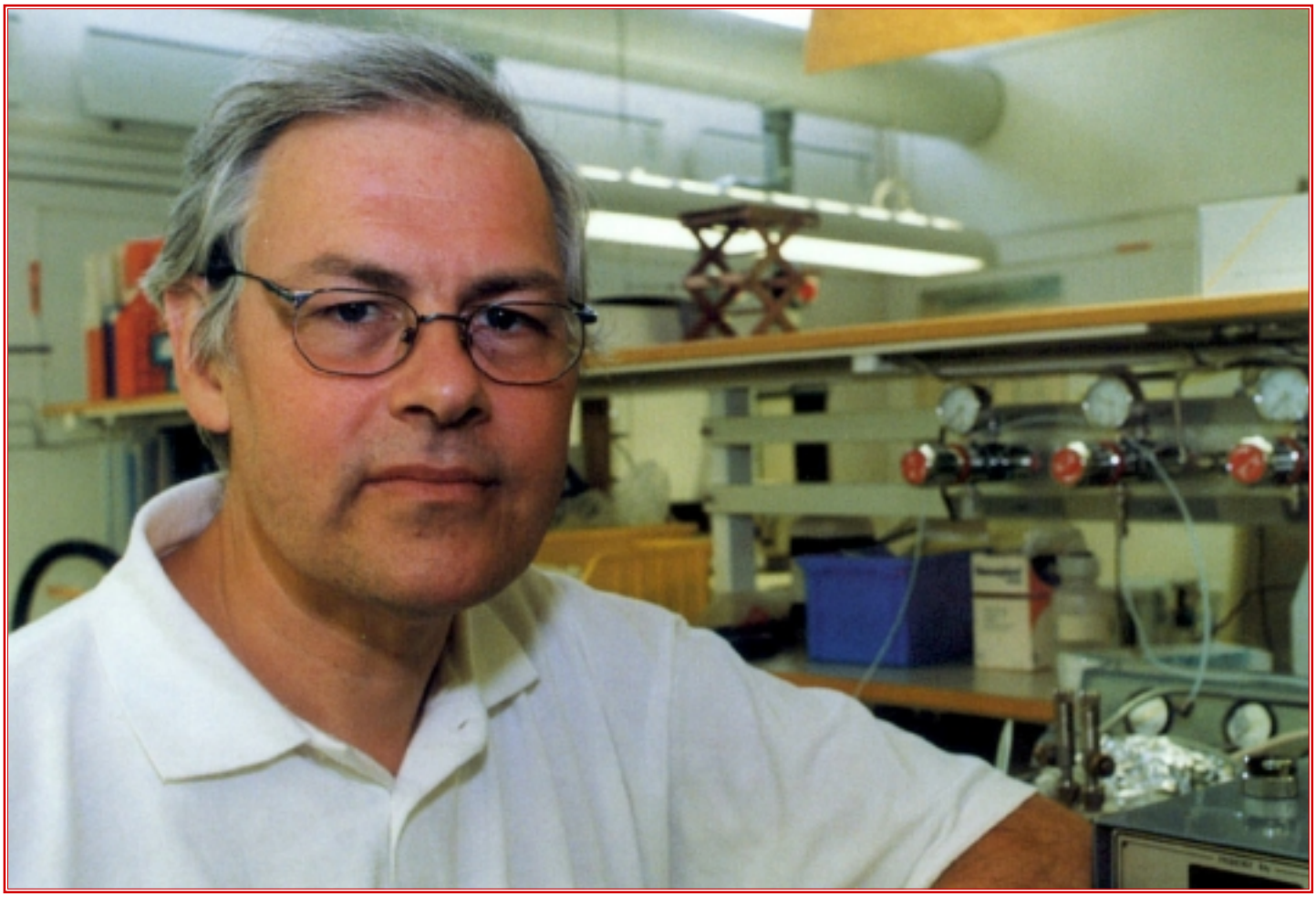
- I really think risks should be taken seriously, but at the same time you shouldn´t exaggerate fear. After all, leukaemia is a rather unusual disease.

- At the same time it is vital that every employee follows safety regulations and uses protective gear in a correct way. No one should have to go through what I have experienced without due cause. When Lars Ljungström started working again at the end of the 80s it was not suitable for him to work on tankers again. Instead he started working ashore.

- I really liked working on vessels and naturally I felt sad that I couldn´t continue. However, in my job as a marine consultant dealing specifically with staff matters, I am responsible for the personnel on Vänerlinjen AB, among other things.

- I enjoy life these days, since I know how precious it is! ❑

NEW RESEARCH HAS GIVEN US A LOT TO LEARN



Seamen working in the engine room or on tank deck have had a tendency to get cancer more easily than those working ashore. There is also an increased risk of dying at an earlier age. According to Rolf Nordlinder and Ralph Nilsson both scientists at Sahlgrenska University Hospital, Occupational and Environmental Medicine, these enhanced risks are not included in the seaman´s profession and you can actually do something about them.

Many seamen consulted the clinic where Rolf Nordlinder and Ralph Nilsson work, which created an interest in seafarer´s health. They were informed about deficiencies in the working environment mainly on tankers and in engine rooms.

- In 1987 we carried out a health survey of crews on ten tankers, and a register study of all seamen who had signed on Swedish vessels in 1970. In those days there were 12 137 men in the Seaman´s Register. 17 years later 881 of them had developed cancer, which is 30 per cent more than among a corresponding group of people working ashore. When scientists had a closer look at the figures, they found that engine officers had doubled risk of getting cancer compared with the average risk ashore. These risks on seagoing personnel are partly due to factors depending on your life style. For instance smoking has been more common at sea than among staff working ashore, says Ralph Nilsson who took his doctoral´s degree in "Cancer in seamen with special reference to chemical health hazards".
- Since deck officers smoked as much as engine officers, they still had less tendency to develop lung cancer. Consequently, we understood that there had to be a certain risk involved in working in engine rooms.
- We have also seen an increased risk of getting leukaemia and lymph cancer for those working in the engine room.

ASBESTOS

The engine rooms of the 60s and 70s looked very different from those in modern newbuilds. There was more asbestos which turned out to be the largest single reason for an enhanced cancer risk. Quite right, among engine room staff, scientists have found more cases of cancer in the pleura than expected. This type of cancer almost exclusively affects those who have been exposed to asbestos.
Asbestos, however, is long known to be hazardous and it is therefore prohibited to use when building new Swedish vessels. This material will consequently disappear when the Swedish fleet is renewed.
- We shouldn´t expect it to disappear all over the world. In some parts of the world a large amount of asbestos is still used, says Rolf Nordlinder.

POLYAROMATIC HYDROCARBONS

Apart from asbestos many polyaromatic hydrocarbons (PAH) are carcinogenic. PAH are found in exhaust gases, soot and oil. They also exist in tobacco-smoke with lung cancer as a result. Rolf Nordlinder is a chemist and an occupational hygienist at Occupational and Environmental Medicine in Göteborg and he has studied seagoing personnel working in engine rooms and the extent of exposure of hazardous substances.
As it turned out hazardous substances are not only absorbed through respiratory passages but can also be absorbed through the skin. He also discovered that the ones who constantly have hands soaked in oil, pose the same risk as the ones who get really oily and then quickly wash it all off with an approved detergent.
- Proper protective equipment when changing pistons is not enough if you don´t bother about protection when doing all other dirty work in the engine room.
Rolf Nordlinder maintains that gloves should always be used when working in an engine room.

BENZENE

For the seagoing personnel who don´t protect themselves, it isn´t just asbestos and polycyclic aromatic hydrocarbons that can cause diseases and suffering: Benzene is also a risk to be considered when looking at the working environment.
Every time you fill your car up you expose yourself to benzene. Seamen on tankers loading petrol tend to be exposed to an even higher dose.
-Benzene causes mainly leukaemia, but most likely also lymph cancer. These diseases are rather unusual - but those who have been working on tankers are overrepresented, says Ralph Nilsson.

YOU CAN PROTECT YOURSELF!

After investigating how much risks decrease with different types of protective equipment, scientists have found that you can get good protection.
- In the engine room it is important to use the personal protective equipment, which should be provided on board your vessel. On the other hand, on tank deck larger technical solutions on board the ship are often needed. Both Ralph Nilsson and Rolf Nordlinder emphasise that a great number of changes have already been made on board vessels. To a large extent awareness of the working environment is much better today than in 1970 and for example automatic cargo surveillance systems have been introduced on Swedish tankers. There is also a greater understanding of how food, smoking and alcohol can affect your health. At the same time new chemicals appear and new hazards are also constantly detected.
- Your shipping company is responsible for factors concerning your life style, just like you have to make sure that your working environment is safe. Ralph Nilsson and Rolf Nordlinder maintains that both parties must co-operate in order to achieve a good working environment. ❑

Benzene is a circular aromatic hydrocarbon composed of six carbon atoms. It is included in engine petrol. For quite some time benzene has been known to cause leukaemia. The hygienic limit during a working day of eight hours is 1.5 mg/m3 or 0.5 ppm.

Polyaromatic hydrocarbons (PAH) This is a group of chemical substances built by several benzene rings. PAH are generated during in the combustion of organic fuels to get better effects and they can also be present in heavy oil products. Many of these compounds are carcinogenic. One of them is benzo(a)pyrene. For benzo(a)pyrene the hygienic limit during an eight hour working day 0.002 mg/m^3.

- By using your personal protective equipment in the right way you can avoid getting exposed to hazardous substances on vessels, says Rolf Nordlinder, scientist at Sahlgrenska University Hospital, Occupational and Environmental Medicine. His colleague (on the page before) agrees.

TANKDÄCKETS RISKER

There is an enhanced risk of getting leukaemia and lymph cancer among those who have been working with loading, discharging and cleaning of tanks on product tankers, than for the average seaman. The risks are decreasing when new technical solutions are introduced on tank vessels.

Benzene, a volatile substance included in petrol, used to be added as a solvent in e.g. glue. It was also used as a pure solvent. This application has been prohibited for a long time, since it proved to be a straight connection between benzene and leukaemia.
- Today petrol must not include more than two per cent of benzene at the most. When our gauging investigations started, the limit was five per cent. It is a well known fact that there are risks involved in benzene, particularly risks of getting leukaemia, says Rolf Nordlinder, Sahlgrenska University Hospital, Occupational and Environmental Medicine.
Rolf Nordlinder together with his colleague, have cross-referencedmade a study based on data from the Swedish National Cancer Register and the Swedish Registry of Seamen between 1971 and 1987, together with the National Population Survey of 1970. As a result they have found out how many of those working at sea have developed leukaemia and cancer in the lymph glands.
- We found 46 cases of established cancer, out of thousands of registered seamen. 14 of those with cancer had been working on tanker decks.
- Those 14 cases indicate that there is a connection between getting cancer and working on tank deck, since those who do this work are so few in relation to the total number of registered seamen.
For the two scientists at Occupational and Environmental Medicine it was important to obtain more information through studies of the various environments at risk in vessels. In the summer of 1994 measurements on two different coastal tankers were carried out, in order to investigate the exposure of benzene in different tasks. Subsequently, in 1995, 1996 and 1999 measurements have been made on five other coastal tankers with different ages and with different cargo surveillance systems.
- Before we carried out our measurements, we thought that the highest exposure would be found at the loading point, but that was not the case. The highest exposure was found at stripping, at leakage from couplings and in connection with tank cleaning and also when there was no wind at all. Rolf Nordlinder explains that certain tasks, such as connecting and disconnecting manifolds and inspection of tanks, imply high exposure peaks. Just like any hazard on board, you can protect yourself against far too high exposure of tank gases.

LOADING

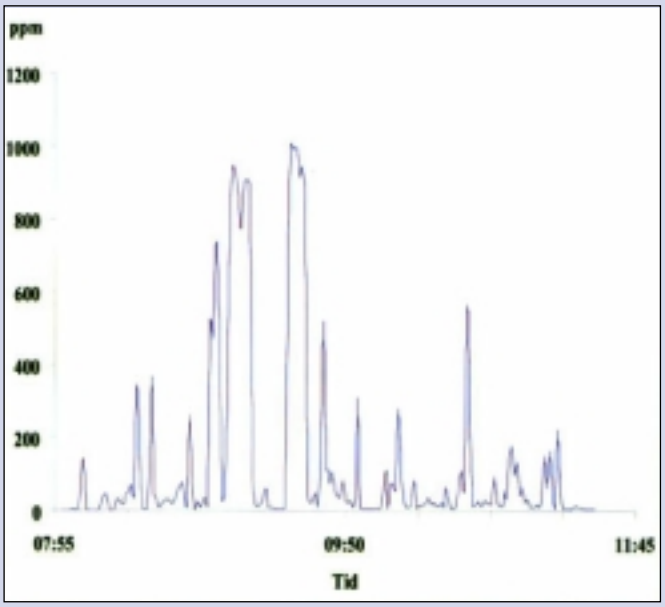
Since 1993 all vessels must have some kind of automatic cargo level gauging system, so that you don´t have to look straight down into cargo tanks to check if the tank is full. Many people don´t rely on automatic control devices, which means that somebody has to look down into the tank to check the level anyway. It is therefore important that automatic level gauging system is constructed and maintained in such a way so that the person in charge of the cargo can rely on the system. Then the number of manual inspections can be kept at a low level. This is particularly important at the topping-off procedure, since the gas that comes up is saturated with vapour from the cargo.
When you have to look down the manlid, breathing protection is necessary, using an appropriate filter.
Cargo hatches should be kept closed during the whole loading procedure. Also indoor air is affected during loading since cargo gases from the tank deck can get sucked in through the ventilation. This particularly applies when there is no wind and gas from the high jet valves return to tank deck, diluted this time, but nevertheless dangerous. If ventilation is switched off during loading, unnecessary gases into the accommodation can be avoided.
The best way to eliminate exposure is to lead cargo gases back into a closed vapour return system. Many Swedish vessels have installed such systems, but there are not many ports with similar facilities. In Göteborg such a recycling unit is being installed.

DISCHARGING AND CLEANING OF TANKS

When exposure to benzene in different engine room tasks on tankers was measured, scientists provethe results indicatedd that exposure was higher in discharging than in loading, and highest at tank cleaning.
They found that contents were high at the traditional stripping of tanks, since it is often necessary with manual inspection at the manlidmanhole.
Due to modern deep well pumps the problem is not as big, and with the so-called super strip system in for instance the new generation of tankers, the problem disappears. After stripping, tanks are completely empty and gases are ventilated with automatic fans operated directly from the bridge. As a consequence, tank cleaning will be rationalised which will be a great difference to the vessels where oil residue still has to be removed manually in the cargo tank.

HOW TO PROTECT YOURSELF IN EXISTING VESSELS THAT LACK MODERN SYSTEMS?

- As far as hazards on tank deck are concerned, it is true that large technical solutions are needed, which have to be built in vessels from the start, says Rolf Nordlinder. If you work on an old vessel, you have to be extra careful when using your own protective gear, i.e. overall (necessary also on sunny days) and above all never forget your breathing mask/breathing apparatus and gloves.
You must never forget that a splash from the cargo on a piece of unprotected skin means that benzene gets into your body.
- The number of manual inspections of tanks should be kept to a minimum. On some vessels they check whether the tank is filled by listening rather than looking.
- Systems with inert gas are also environmentally interesting.
- There are also other methods if you just get aware of the risks and try to find solutions in a constructive way, says Rolf Nordlinder. ❑



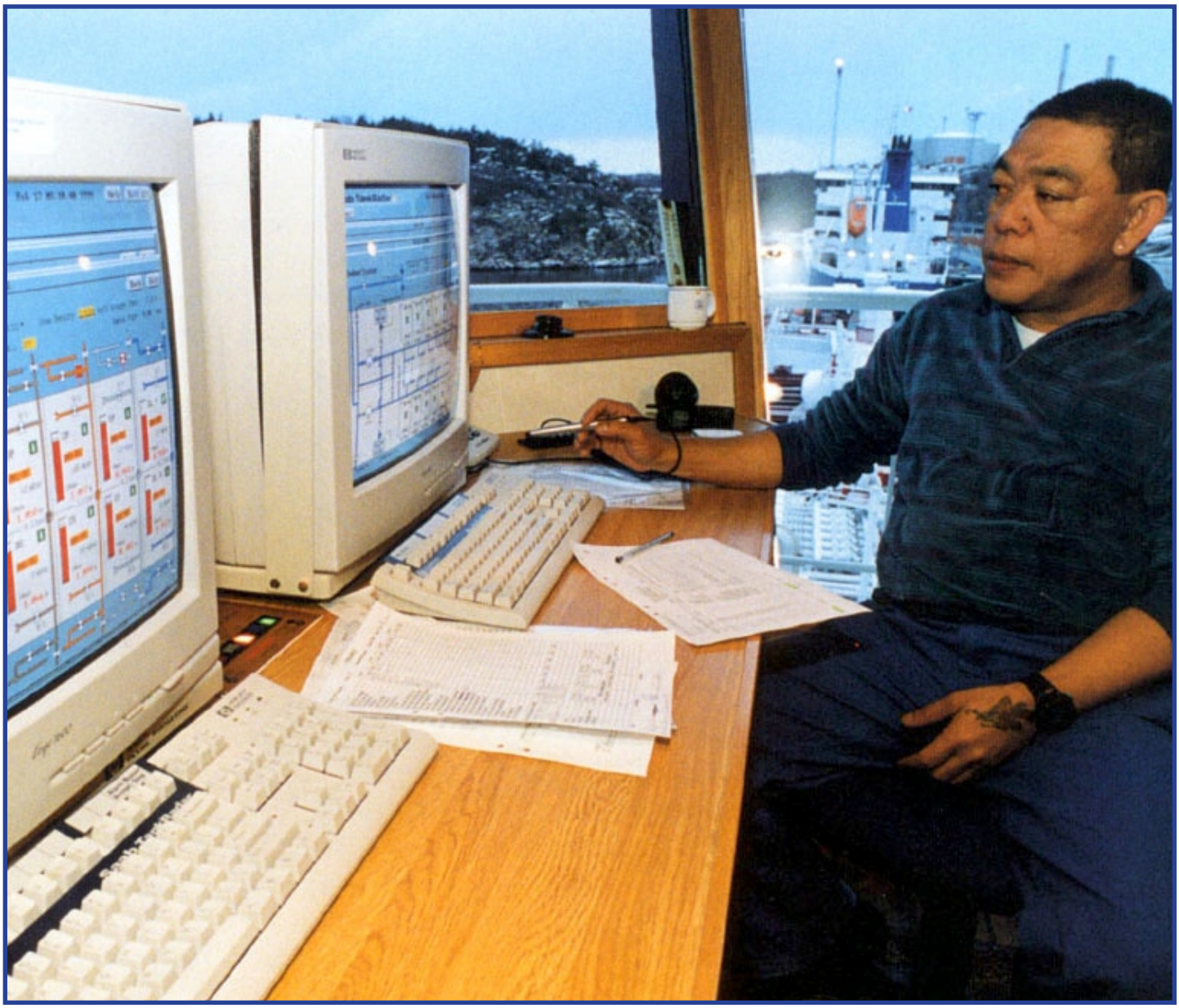
The diagram shows the exposure an able seaman gets when he cleans a tank on board one of the five examined Swedish coastal tankers. The scale to the left shows the amount of hydrocarbon in the breathing zone, measured in ppm (parts per million).

- This diagram gives us an example of a far too high exposure, says Rolf Nordlinder. The average exposure was 130 ppm and since there were 3 per cent of benzene in the tank in question, benzene exposure had an average of 4 ppm during the four hours when tank cleaning was taking place. The limit should be 0.5 ppm.

- The graph clearly shows how exposure increases when the ab first opens the tank and washes it afterwards. When he sticks his head down to inspect the tank he gets a strong exposure. After the last flushing, comes the last exposure-peak, when the tank is inspected.

- This is a clear example of the importance of good protection with respirator or breathing apparatus on these specific occasions, says Rolf Nordlinder. With breathing protection you cut off the highest peaks when you are really exposed to hazardous substances, and the average exposure will also decrease.

OBS! Forskarna har valt att studera effekterna av bensen från bensinlaster ombord, men resultaten och skyddsåtgärderna gäller generellt för alla hälsoskadliga produkter som fraktas med tankfartyg.



HAZARDS IN ENGINE ROOMS

A clean engine room is not only a nice sight, it is also good for your health. In a clean space hazards are more easily detected and it is also easier to take care of them. A clean working environment free from oil residue, leaking exhaust fumes and pungent solvents are hazardous.

OILS

Most oil products contain polycyclic aromatic hydrocarbons (PAH), many of which can cause cancer. The concentrations of PAH varies between different kinds of oils. Generally speaking, the heavier the oil, the higher the degree of polyaromatic PAH. It is particularly important to think twice when handling used lubricating oil, or oil mixed with waste oil, since there can be extra high levels of polyaromatic PAH.
Keep in mind, that hazardous substances can be absorbed into your body, both through the air and through the skin. Never clean oily hands with diesel oil or other oil products.

OIL AEROSOL

Oil aerosol consists of extremely small fog-like drops of oil particles in the air. The occupational exposure limit of oil-aerosol is 1 mg oil particles per square meter of air during an eight-hour-period.

A In a co-operation between Occupational and Environmental Medicine and Hamn- och Rederihälsan in Göteborg unique research has been carried out involving engine room staff and exposure to oil-aerosol. Such a study has not been made anywhere else in the world. In all 148 persons and nine vessels were included. In general, measurements of oil aerosol in the engine rooms of these particular vessels gave low figures. When the scientists studied the amount of particles in different engine room tasks, they found that approved values could be found in pressure tests of fuel valves with pure petroleum products, e.g. Exsol D100. They became higher when the same pressure test was carried out with ordinary diesel oil.

SOOT

Under normal circumstances soot is not a health problem to people working in an engine room. However, there is a risk of strong exposure when making overhaul of engine parts where burned combustion residue is ground off. The same accounts if you are in an engine room with leaking exhaust pipes. Since there are PAH in soot, you should be careful not to breathe air with soot particles and also avoid getting it on your hands.
Urine samples were taken of engine room staff to establish the level of PAH in different types of work. Scientists found the highest levels of PAH among those who had just worked with the exhaust pipe to the boiler or who had carried out ordinary maintenance work at the main engine or auxiliary engine. This work is both dusty and filled with soot. It is often done without gloves. When you get into hot areas, leather gloves are used. Leather only protects you from heat and it doesn´t protect you against soot and oil.

SOLVENTS AND CLEANING AGENTS

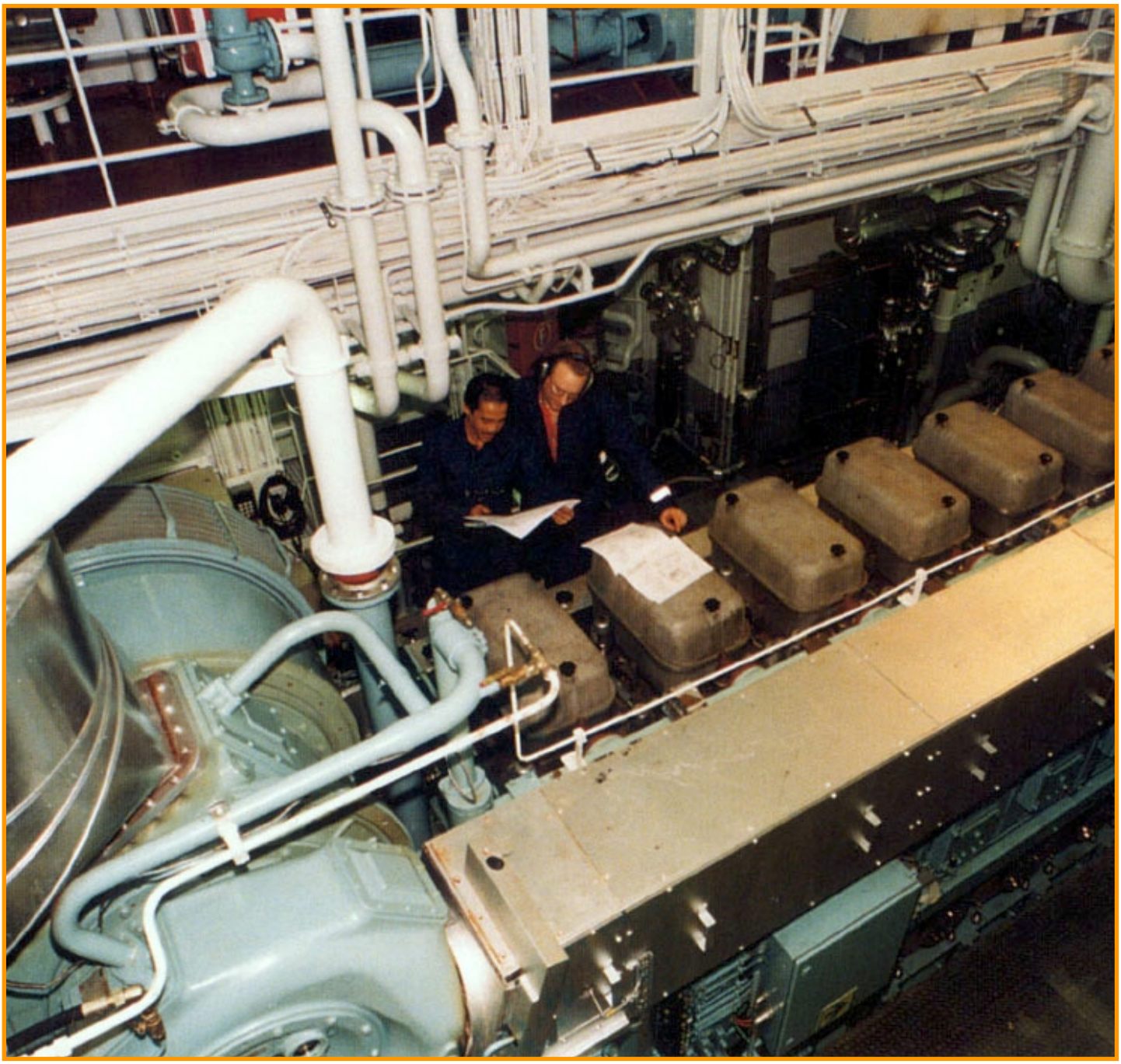
There are a great many different cleaning agents used when working in an engine room. Today most of them are soluble in water and hence not as hazardous. However, some water-soluble substances are strongly alkaline and also corrosive if they get in contact with your skin and eyes.
To reduce the risks when using solvents, always use degreasing agents that are soluble in water.
The person responsible for chemicals on board should go through all chemical products used, continuously, so that the contents are established. Note that there should always be product information written in 16 items to go with every chemical product when purchased.
It is prohibited to use chemical products with unknown contents. When you work with approved, but very strong alkaline cleaning agents, it is important to protect your skin with protective clothes and gloves and your eyes should be protected with goggles.

ASBESTOS

Asbestos is heat resistant and it used to be a very appreciated fire protector both ashore and at sea. Many lives have surely been saved due to the fact that fireproof bulkheads on board were insulated with asbestos. In the 70s it was discovered that asbestos give an enhanced risk of getting lung cancer and pleura cancer. In many countries it is now prohibited to use asbestos when rebuilding or building new vessels. In older vessels asbestos will remain for a long time. On vessels built before 1976, insulation containing fibres of asbestos must be clearly marked. If you feel the least uncertain, a sample should be sent to be analysed, enabling you to know exactly what protection should be used. You need to take action when fibres are freed,. This happens if there is damage on asbestos insulation or if you drill straight through asbestos. In order to work with material that consists of asbestos you have to pass special courses and also use full protective gear with approved breathing protection.
As long as it is well protected, there is no need to worry about asbestos on board vessels.

PERSONAL PROTECTIVE EQUIPMENT

If you are an engine room worker, your working environment can be improved to a large extent by using protective equipment. Protect your whole body with overall, gloves and proper shoes or boots, as soon as there is a risk that you will get exposed to oil or solvents. Always start a new working day with a clean overall. Gloves should be made of nitrile rubber or PVC. It is also important to get rid of broken gloves and gloves which have oil on the inside.
Gloves used for solvents should be exchanged often, since solvents can get absorbed through the skin easily. Never use another person´s protective gloves. Always use your own, which should be well kept. Use hand lotion regularly. Not only because soft hands are nice, but because your skin gets more resistant to corrosive substances if it is soft and doesn´t have any small wounds. ❑



THE WORKING ENVIRONMENT TAKEN SERIOUSLY

On board the Furenäs, half of the crew comes from The Philippines and half of the crew from Donsö on the west coast of Sweden. Irrespective of their background and tasks on board the ship, the whole crew has the same opinion about the standard of the vessel:
”On the Furenäs everything possible has been taken into consideration regarding both the environment and the crew.”

M/T Furenäs looks like a blue and white almost shining jewel at the product jetty in Brofjorden, the largest oil harbour in Sweden. Cargo hoses are connected to the manifold and cargo tanks are slowly filled with aviation kerosene.
On deck hardly anybody is visible, but there is full activity on the bridge. In front of computer screens, loading can be thoroughly monitored by Chief Officer Lennart Larsson. On a screen he can see when a cargo tank is full and when it is time to change to the next one. Valves are opened and closed with a light pencil which is pulled over the valve in question on the computer screen. No human eye ever needs to check the level of the tanks.
- When you come to think of it you can´t believe what things were like before, when you had to look down the tank hatch to check the level, Lennart says with a shiver.

A MACHO ATTITUDE TO SAFETY IN THE 70S

In the messroom the discussion continues and pump operator Bengt Nilsson remembers the 70s and attitudes towards safety in those days which can be described as very macho.

- Those who were young and wanted to use hearing protectors were laughed at. Protective masks and gloves could not even be mentioned since that type of gear was considered effeminate. The most important thing was that you looked cool. Young people today have a completely different attitude towards safety. Safety equipment is taken for granted. They are also very well aware of what is good for the environment, and this makes it a challenge for the older generation to set a good example.

Oiler Nicklas Johansson points out that the design of the protective gear being used has also been improved a great deal.

- For example it used to be difficult to work properly with your protective gloves on. Nowadays they are manufactured in a smoother material and the fit is better. These things also affect your attitude. A great deal, however, revolves around information and making people aware of advantages of using protective gear.
- It wasn´t until after a general duties course that I stopped cleaning my hands with thinner. I used to think that the only thing that was affected was my skin and I never realised that so were my internal organs. Nowadays I absolutely use gloves and so does everybody else on board my vessel.
- There is a strong interest in safety and the working environment from the part of the shipping company which has a positive impact on the crew.

FURETANK THE FIRST SHIPPING COMPANY CERTIFIED BY THE ISM-CODE

Shipping company Furetank was the first shipping company in Sweden to become certified in accordance with the ISM-code. There is an old tradition behind discussing and improving safety as well as the working environment. It has always been very natural in this company.

- There is an SMS-meeting every month in which everyone in the crew participates, says Bengt Nilsson. At every meeting we study a chapter of our ISM-manual. We also keep our knowledge updated by acting according to the manual. If we discover that we haven´t followed the manual, we bring this up to a discussion. In some cases we change the manual, in other we change our routines, all depending on the situation.

THE WORKING ENVIRONMENT AFFECTS EVERYBODY

- At our meetings anybody can bring up anything that concerns safety and the environment. The working environment concerns everybody. That´s why everybody has to be responsible for it and make necessary improvements together, says the crew in the messroom.

They also agree about the personal protective equipment as being part of a good working environment. Technical solutions need to be arranged for at the very planning stage, which was the case on the Furenäs.

Chief engineer Karl-Gustav Gunnarsson proudly presents his shining clean engine room.

-Cleanliness is only a part of the quality strategy. If all spaces are clean it is easier to keep the whole area safe and a small leakage can be detected quickly. In a dirty environment these things can be hidden, he says on his way to the separator room. The heavy oil module to the main engine normally situated in the engine room, is placed here.

- Since ventilaton is better in the separator room it was only natural for us to place it here, for the sake of the working environment.

Another good invention is the system where all pipes to the bunker tanks are connected to one single pipe ending in the stern section on second poop, which is an area where it is prohibited to be. On other vessels tank ventilation pipes emerge directly on tank deck as constantly leaking goose necks.

Master Lars Croy is happy to show the carefully prepared solutions which are built-in the vessel to improve the working environment.

LOADING AND UNLOADING OPERATED FROM THE BRIDGE

- The largest change is the fact that loading and discharging can be operated straight from the bridge. We also have a super strip system which empties tanks completely. This has resulted in less tank cleaning, which in its turn decreases the risk of being exposed to hazardous tank gases.
- We also have a very well developed ventilation system where cargo gases are removed.

Earlier this work included moving the ventilation equipment on deck. The entire system is also something that is now monitored from the loading computer on the bridge by one single man.

Third officer Henry Ragas from The Philippines has been working on board the Furnäs for six months in a row. He also thinks that the vessel offers a remarkable working environment.

- I have been working on many vessels, no one can be compared to this, he says. It is clean, nice and the food is good.

FOOD CREATES A NICE ATMOSPHERE

Cook steward Yvonne Werther knows that good food is important and it also means a great deal for the working environment.

- It is really important that meals are nice and tasty. This is particularly important for everybody staying away from home for a long period of time. Meals must be varied and healthy at the same time. I try to serve vegetables in a tasty way together with each meal. We also serve fish twice a week.
- However, there are certain limits to what you can do as a cook. If you for example refuse to serve bacon on Sunday mornings you won´t stop here long, she says. ❑

YOUR LIFE STYLE MEANS A LOT TO YOUR HEALTH

Your life style can be a greater cancer risk than your working environment. Research shows that by changing your eating habits, eating more vegetables and avoiding fat you will reduce your risks of having cancer or a heart attack.

Cancer and cardio-vascular diseases are the two most common causes of death in Sweden. Every year about 40 000 new cases of cancer are detected, half of them can be cured. A third of all cases of cancer could be prevented. There is, however, not only just one reason why you develop cancer. There are usually several factors that contribute to the disease. The State Cancer Committee has made a scientific estimate of how much different risk factors mean for the development of cancer. Their results show that food and smoking contribute to almost half of all cases of cancer and the working environment contributes with generally speaking two per cent.

DIET

Our diet is considered to contribute to about one third of all cancer cases, mainly cancer in the large intestine and stomach. Not much is still known about what specific diet factors will eventually develop cancer, but a diet which includes a large proportion of vegetables and fruit protects you from cancer.
- Even though diet habits have improved during the last few years, there is still a lot to be done, says Ralph Nilsson,
Today food is still suited for heavy manual work instead of the needs of the modern seaman. The food culture from the olden days is still common which can be explained by the need of having a nice atmosphere on board vessels. However good food doesn´t have to mean red meat and fat gravy!
- Many shipping companies have realised the importance of serving more healthy food in an appetising and attractive way. A fresh salad should always be included with a meal and a lot of fresh fruit since this is a good cancer protection.
Meat and vegetables are often considered to be opposites but really it´s the other way around. Those who can´t resist a rare steak with Béarnaise sauce should be sure to have this together with fruit and vegetables.
- It is particularly important that there are enough vegetables and fresh fruit during long voyages.
Ralph Nilsson and his colleague Rolf Nordlinder have also studied the weight of staff working on nine vessels. As it turned out far too many were overweight. The overweight was shown in a BMI-index. If this turns out to be over 25 you have a greater risk of cardio-vascular diseases. If it is over 30 you are in a serious danger-zone.
- We found that 20 per cent of the seagoing personnel had a BMI exceeding 30, compared to seven per cent on staff working ashore. Among ratings working in the engine room and on deck the number of overweight persons were even higher.
- A BMI-index of over 30 is not good for your health. If you are also a smoker it is even worse. In such a case you should really start changing your life-style. The first step could be to finish your meal with a fruit instead of having an extra helping.

EXERCISE

These days it is common for vessels to be equipped with some kind of gym. Working out for half an hour twice a week will give immediate results on a person who has had little exercise and who is overweight. Scientific studies show that physical activity reduces your risk of developing colon cancer.

SMOKING

15 per cent of all cancer is due to smoking. Smokers get cancer mainly in the lungs, mouth cavity and throat, gullet, pancreas, larynx and the urinary tract.
Smoking in combination with a poor working environment makes your health become even worse than each single factor. Smoking also affects your physical fitness in a negative way and the risk of cardio-vascular diseases increases. There used to be a large difference in smoking habits between seamen and those working ashore, but nowadays many seamen have given up smoking.
If a non-smoker is exposed to asbestos the risk of getting lung cancer is five times larger that a person who has not been exposed to asbestos. If a smoker is exposed to the same thing, the risk increases by 50 times, i.e. by 5 000 per cent!
Carcinogenic polycyclic aromatic hydrocarbons found in oil, petrol and exhaust gas also exist in tobacco-smoke. Apart from this, there are also other substances in tobacco-smoke that are poisonous strictly forbidden to use in the work environment. The concentration of those substances is higher in the so called side-smoke, i.e. the smoke that the passive smoker inhales.

ALCOHOL

Everybody knows that drinking increases the risk of becoming an alcoholic. But not as many people know that alcohol also increases the risk of developing cancer in the mouth cavity, throat, gullet, liver and larynx.
Drinking has decreased a great deal among seamen during the past decades and there are several reasons for this. Access of cheap alcohol has reduced and there is an increased demand on each employee. The general attitude is stronger against drinking among staff based on board. Besides, most Swedish shipping companies have a clear anti-drug and anti-drinking policy nowadays which further enhances the trend towards less drinking.
- Those who work together with a person with a drinking problem on a vessel, should contact Company Health Care immediately. There are really good treatment clinics for those who need it. The sooner the person gets care, the better the result will be, says Ralph Nilsson.

CALCULATE YOUR OWN WEIGHT-INDEX

You can easily calculate your own weight-index by multiplying your own length with your own length (E.g. 1.78 x 1.78 = 3.16. Then you divide your own weight with the sum you got. E.g. 80/3.16 = BMI 25.3.)
If your BMI is over 25 you have an increased risk of getting cardio-vascular diseases. If it is over 30 you are in a severe danger-zone.

16 STEPS TOWARDS A HEALTHIER LIFE

1

Always remember that you are responsible for your own health, even if your shipping company has the main responsibility for your working environment. Don´t hesitate to ask if you have questions and make sure that you yourself are aware of any existing problems which involve your working environment. Your working environment protection is there for you.

2

Use the correct personal protective gear. Make sure you have appropriate gear for each specific task, and then use it. If there are any deficiencies – make sure that you get the best protection! According to the Vessel Security Act, chapter 7, section 4 the shipowner is responsible for providing the protective equipment needed. Make sure you obey company safety regulations.

3

Stop smoking! No other single measure can be taken to improve your health as much as if you stop smoking. It is scientifically proved that smokers have a tendency to die early.

4

Also drinking is hazardous to your health, since high consumption of alcohol increases the risk of accidents, cirrhosis of the liver, and cancer. Your Occupational Health Care Unit or a medical doctor can help you, if you have a hard time controlling your drinking. The same thing accounts if you have started taking drugs! If you or any of your work mates get a drinking problem or drug problem, get professional help. The sooner the better!

5

Make sure you eat vegetables with each meal and at least one fresh fruit a day. Fruit and vegetables contain vitamins and fibres keeping your stomach in proper trim and they also contain substances protecting you from cancer. Are any other reasons needed?

6

Get enough regular exercise, at least twice a week for half an hour at a time. For instance you can take a quick walk or work out in a gym. The type of physical activity is not important, as long as you get exercise. You should also exercise on your shore leave. Remember that a weight problem may shorten your life.

IF YOU WORK IN THE ENGINE ROOM

7

Start your working day with a clean overall. Change it as soon as it has been soaked in oil. Avoid getting oil on your skin.

8

Immediately wash oil from your skin with an approved detergent and rinse thoroughly with water. Avoid cleaning your skin with diesel oil or any other oil products.

9

Use proper gloves, i.e. gloves made of nitrile rubber, PVC or neoprene. Also use your personal gloves and take good care of them. If you get oil inside them, or if they break, get rid of them away immediately. Remember that leather gloves protect you against heat but they absorb oil.

10

Good planning and careful personal care are important factors that contribute to improve your working environment. Remember that the best working environment can be found in engine rooms where oil spillage seldom occur and if you happen to spill anything, it should be taken care of promptly and efficiently.

11

Engine room leakage and pollution should be taken care of as soon as possible. When cleaning separators, closed cleaning systems such as CIP, can reduce the exposure of polycyclic aromatic hydrocarbons, (PAH). Pressure tests of fuel valves should always be performed in so-called fume-cupboards.

12

Always use breathing protection if there is a risk of getting exposed to solvents, dust, soot or pollution. Examples of breathing protectors are any type of respirator or self-contained air-breathing apparatus. Remember to protect your skin since many solvents absorb through your skin.

13

When working with insulation material on an old vessel, make sure that the space in question has been checked for asbestos and make sure that the material you will work with has been marked in accordance with existing regulations. If you feel the least uncertain you have to pass the material on for an analysis. You are obliged to pass a special safety course to be able to work with asbestos and you also need a medical examination. You also have to use approved breathing protection, a disposable overall with hood and gloves.

IF YOU WORK ON DECK OR IN THE ENGINE ROOM

14

Remember that all solvents are absorbed through the skin and through inhaling. Chemicals may also be strongly corrosive. When working on tank deck all immediate contact with cargo both through your skin and respiratory organs should be avoided. If possible, use a cotton overall and breathing protection, i.e. respirator with a combination filter (carbon filter + dust filter) or self-contained air-breathing apparatus during loading, discharging, cleaning of tanks and when coating. Remember that filter masks can get saturated with gases and then need to be exchanged. It is important that the breathing protection undergoes a thorough cleaning process and that it is placed in a plastic bag together with filters. Respirators should not be placed in the pump room or paint stores when they are not being used.

15

Always use approved gloves to avoid skin contact with hazardous chemicals. Necessary information about the use of gloves and their protection against chemical products should be accompanied with gloves. (See also item 9).

16

Remember that all personal protective gear must be approved. According to EU-instructions all personal protective equipment should be classified and marked with CE and identity number.

WE ARE THERE FOR YOU

Efter att du har läst den här broschyren kanske du vill veta mer om risker, arbetsmiljö och den egna hälsan. Eller också vill du lämna synpunkter och förslag för en bättre arbetsmiljö ombord. I första hand kan du som anställd vända dig till närmaste chef eller andra i rederiets organisation för hantering av skydds- och arbetsmiljöfrågor. Utöver detta finns en hel del olika instanser dit du kan vända dig:

SJÖFARTENS ARBETSMILJÖNÄMND

Sjöfartens Arbetsmiljönämnd SAN bildades 1956 och har allt sedan dess arbetat för att förbättra arbetsmiljön ombord. I nämnden ingår representanter för Sjöfartens Arbetsgivarförbund (SARF), Sveriges Fartygsbefälsförening, Sjöbefälsförbundet (SBF) och SEKO sjöfolk. Representanter för Prevent och Sjöfartsverket är adjungerade i styrelsen. SAN följer utvecklingen inom arbetsmiljöområdet, propagerar och informerar, initierar utbildning, utredningar och forskning samt sätter upp gemensamma riktlinjer för landets samtliga företagshälsovårdscentraler för anslutet sjöfolk. Därutöver för SAN statistik om arbetsmiljön samt ger ut SAN-NYTT fyra gånger per år.

FÖRETAGSHÄLSOVÅRDEN

I stort sett samtliga svenska rederier är anslutna till en företagshälsovård dit du alltid kan ringa om du har frågor kring din egen hälsa och arbetsmiljö. SAN arrangerar varje eller minst vartannat år en konferens med samtliga företagshälsovårdscentraler inom rederibranschen. Därmed hålls de uppdaterade på de senaste forskarrönen vad gäller arbetsmiljön ombord. Telefonnumret till din företagshälsovård får du av personalavdelningen.

SJÖFARTVERKET

Vill du veta mer om vilka regler, rekommendationer och gränsvärden som finns för olika ämnen och arbetsmoment kan du ta kontakt med arbetsmiljöenheten på Sjöfartsverket. Där kan man också beställa de föreskrifter som reglerar arbetsmiljön ombord. Nu kommer snart de nya föreskrifterna om hantering av oljeprodukter. Telefonnumret till Sjöfartsverket är 011 - 19 10 00, begär arbetsmiljöenheten. När det gäller frågor kring medicin och personlig skyddsutrustning kan man också ta kontakt med Leif Remahl på Sjöfartsverket.

PREVENT

Prevent är ett gemensamt arbetsmiljöorgan för Svenskt Näringsliv, LO och PTK.
Prevent och SAN samarbetar de i många frågor. Det är Prevent som ger ut Bättre arbetsmiljö – sjö.
Boken är en studiehandledning för dig som vill veta mer om din arbetsmiljö generellt sett.
Boken kan beställas från Prevent, men skall även finnas ombord i varje skyddsbibliotek.
Prevent bedriver utbildning och ger ut tidningar och böcker om arbetsmiljöfrågor.
Även om den mest är inriktad på landverksamhet, är mycket överförbart även till sjöfarten. Telefon: 08 - 402 02 00

DIN FACKLIGA ORGANISATION

Sveriges Fartygsbefälsförening, Svenska Maskinbefälsförbundet och SEKO sjöfolk har engagerat sig djupt i försöken att förbättra arbetsmiljön ombord. Varje organisation har en speciellt utsedd arbetsmiljöansvarig person. Ring din fackliga organisation för att komma i kontakt med honom eller henne. SEKO sjöfolk: tel: 031 - 42 94 20
Sveriges Fartygsbefälsförening: tel: 08 - 10 60 15. Sjöbefälsförbundet (SBF): tel: 08 - 598 990 00

STIFTELSEN SVERIGES SJÖMANSHUS

Stiftelsen belönar förslag till säkerhets- och arbetsmiljöförbättrande åtgärder ombord, samt stöder vissa forskningsprojekt med samma syfte. Telefon: 08 - 08 641 44 37.

SJÖFARTENS ARBETSMILJÖSTIFTELSE, SAMS

Ändamål: Finansiering av för sjöfartsnäringen gemensamma särskilda åtgärder, undersökningar, forskningsobjekt och kontroller på företagshälsovårdens och arbetsmiljöns område.