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Merus - Newsletter No. 3, issued OCTOBER 2011



Greetings Dear Readers!

The summer holidays have passed and its time for our third MERUS Newsletter. We hope all our customers and friends have enjoyed their summer break. Out of numerous applications we have undertaken in the past quarter, we would be presenting two cases from our water treatment activities to you in this issue.

During the summer months there are traditionally less exhibitions and seminars, but in the last quarter of this year, MERUS and our partners will be present at a row of [shows](#) and events, mainly in Europe and the United States.

Within the last quarter, MERUS has appointed a few new dealers and partners, such as in Canada for the marine business, Slovenia, UAE and South Africa, as well as a lot of new local dealers in India and China.

Click on the the [map](#) and you should be able to locate them.

Also in the same period, MERUS has successfully finalized a few long term trials, which are now under negotiation for full scale long term contracts. Furthermore, we did also sign some valuable long term contracts, for both the water treatment and the Oil&Gas services. There might be details about these cases in one of our next issues of the newsletter!

The MERUS Team hopes there will be something of interest for you in this newsletter as well.

As the MERUS group offers both **Eco friendly Green Water Treatment** as well as **Engineering and Services for the Oil & Gas (Hydro Carbon) Treatment** via our subsidiary MERUS Oil & Gas Ltd., we will



present our oil & gas activities in the same newsletter.



EFFLUENT WATER SYSTEM IN A REFINERY - Q^A, Rotterdam

Effluent water is not the core business of MERUS, but when talking to a customer we first discuss their most critical problem, which has been in this case an effluent water pipeline.

The customer, the Q^A Refinery in Rotterdam in the Netherlands, had a pressing problem in the effluent system where the fouling in the piping reduced the flow, ultimately leading to problems upstream in the process.

We must admit, Effluent water can be very tricky to treat, as it would generally constitute ingredients which can form very resistant scale. Hence the first thing MERUS did was to visually check the piping before undertaking this project to analyse and inspect the present condition. As it can be seen to the left, most of the fouling in the pipe has been regular scale caused by [calcium carbonate](#). The colour of the scale found is dark grey or even black, this is due to the hydrocarbons which are sometimes found in the effluent system. In this case a 10 inch pipeline connects to a settling tank where all the effluent from the plant is gathered, and the



waste water plant, where the water is later on cleaned.

Two MERUS Rings were installed, one at the very beginning of the pipeline and a second one in the middle of the pipeline. For the monitoring of this project, it was agreed to conduct a visual inspection every three months and document it, always at the same point in the pipeline. With each scheduled inspection, we were able to record positive performance on how the existing scale was removed progressively.

When we started the project, we found about 20 mm of scale more or less evenly spread inside the pipe wall; after three months the scale had been already reduced to 10 mm. Then, as the friction of the water in the pipe diminished, the scale started dissolving at a slower rate, but in the end, after 12 months and as can be seen in the picture to the right, the scale was almost totally gone.

It can also be observed that there is more scale in the inner side (left) of the pipe than on the outer side. This is due to the water flow pattern which has a higher velocity in the outer part of the pipe. Therefore, the friction of the water helps the MERUS Ring to remove the scale faster in that sector of the pipe. To view the detailed case study, please click [here](#).

LIMESLURRY DOSING PLANT



When producing drinking water, the raw water from a bore well or from a river has in most cases to go through a row of cleansing and purifying procedures. One of the last steps in the conversion of raw water to potable water is the stabilization of the pH-value. This pH-value is normally set by the drinking water supplier to a value around 7.5. In order to achieve this pH, so called lime slurry is added to the water. Lime slurry is Calcium Hydroxide, Ca(OH)_2 , also called milk of lime.

Addition of this lime slurry has a negative side effect, which is that it forms lime scale quite easily. This [limescale](#) then, of course, causes all the known problems, but evidently it forms scale far faster than in a normal [industrial](#) or domestic application. This limescale causes frequent downtime where pipelines or hoses require to be cleaned. Also, the lime slurry dosing pumps are suffering a lot from this scaling and this in turn



often leads to malfunction of the pumps themselves.

Normally, regular service and cleaning is needed in order to keep the process flowing. As can be seen in the picture of a limeslurry hose, scale builds up in less than 1 week.

MERUS has equipped a lot of such lime slurry plants or lime slurry stations. The MERUS Ring is simply installed at the beginning of the pipe or hose and then keeps the entire pipe/hose downstream free of

limescale.

The lower picture to the left shows the hose after 4 weeks of operation. No trace of scale can be found. Observing these results, most of our customers, which are big water companies, such as Thames Water in UK or North Ireland Water in Northern Ireland, are equipping all their plants, stations or even single pumps with MERUS Rings.

The benefits for our customers are very obvious, which is that there is far less service and cleaning required in order to keep the plant running. As water at a water supplying company has to be produced 24/7, it was very common that alarms would go off in the middle of the night or during the weekend or on holidays, where the system needed to be cleaned on emergency.

Service personnel had to follow up these alarms and fix the problem immediately. Ever since MERUS is being used in such facilities, the formerly very common night service is now history. This is not only saving a lot of cost, but it has relieved the service team from having to leave home in the middle of the night on emergency service calls. In all, the production as well as the maintenance can now be well planned.

In order to view the full case study please click [here](#). If you would like to talk to people from these water companies please [contact us](#), and we will supply you with names and contact details for references.





MERUS
WEBNO
Oil & Gas Processing

MERUS Ring on Flow and Trunk lines - A 32 km pipeline from Oil India Ltd.

When transporting crude oil, a number of problems in the pipelines are faced. In particular, the crude transported from the [oil wells](#) to the gathering stations which is not treated at all, or the crude from the gathering stations to the [separation plants](#), holds a lot of [paraffin wax](#), is often aggressive causing [corrosion](#) or scale. Pipelines, the bigger ones - often called trunk lines or flow lines, facing such problems have to be cleaned on regular basis. To prevent all these negative effects, chemical inhibitors are often injected to the crude in order to minimize fouling in the lines. Nevertheless, waxing occurs anyway leading to the requirement of mechanically cleaning the pipeline. This is done by pigging the pipeline, where a mechanical cleaning device, the PIG (*Pipeline Inspection Gauge*), is sent through the line together with the flow of the crude. This PIG removes the wax, sludge and other materials stuck to the pipe walls.

Sending a PIG through a pipeline is not always possible, for instance if pipe bends are too sharp or if the pipeline is too small. Pigging is very costly and bears the risk that the PIG gets stuck. The PIG wears down and has to be refurbished after the pigging. Therefore Oil & Gas personnel try to minimize the frequency of pigging.

MERUS has equipped many such lines, solving most kinds of problems. This includes flow lines as small as 4" connecting wells with bigger flow lines, to bigger pipelines of 24" and more which connect offshore platforms to the main land.

The actual case from Oil India is in Assam state, the very North Eastern state of India. There are a lot of small wells located in between the tea fields, where the famous Assam tea is grown. In several smaller gathering stations and treatment plants, the crude is purified and from these stations it is forwarded to a refinery. This particular 32 km trunkline, always caused worries to the customer, as it is the most important line and it had to be cleaned regularly. As the wax accumulated during operation, the counter pressure at the line increased, the flow was reduced and the pumps had to work harder, which caused more energy to be consumed.

In this oilfield, MERUS had equipped a couple of smaller lines and a separation plant and as well as this 32 km long trunk-line. Very satisfying results were obtained during the pilot trial and continue to be obtained now in normal operation. Wax buildup has decreased, even existing wax has been removed. The pressure profile is now very stable and it can be inferred from the readings that the wax is getting lesser and lesser in the pipeline.

The question which most often is raised by customers - *how long it will take to clean such a pipeline?* - is difficult to answer. Too many parameters are to be considered. Wax which has formed over years, gets sometimes very hard, and takes in accordance longer to be removed. At present MERUS has given the operation personnel at OIL INDIA LTD extra "Tea Time" and if you are from the Oil & Gas industry, we can do the same for you too! For our appreciation, the customer has issued a Certificate of Performance which you can find [here](#).



MERUS has come to the above and others as a SOLUTION, and it can do so for YOU too...!

What we have brought to you with this issue, is our broadened scope of applications, where MERUS has been able to provide sustainable "solutions" to some of the key problems in their respective fields. MERUS is well known in the industry for continually taking up and accepting challenges, especially the ones where also the environment is on the receiving end. MERUS has under its umbrella of engineering today solutions to water conservation, basic water treatment, hydrocarbon treatment, energy conservation, process efficiency and several other issues, which are dealt with more ease and all of this without changing the chemistry of the liquid - Just by the **MERUS RING**.

We thank you again for your read and would be glad to discuss similar problems faced by you. Stay tuned for more.

Any question please feel free to contact us [here](#).