



Removing COST from Crude Oil Production

COST SAVINGS IN PRODUCTION – IMPROVING HEAVY OIL - ASSETS LONGEVITY & PERFORMANCE – IMPROVED INTEGRITY PROTECTING THE ENVIRONMENT

Chemical Services

INTRODUCTION - PMI - 107

We can dramatically reduce costs by eliminating the unnecessary applications of damaging procedures, services and chemicals, while massively reducing down-time. This is something we all aspire to! Just one of our leading chemicals, **(PMI-107)**, can eliminate up to 9 current chemical treatments used in the oil industry today. Some of them are very damaging, ALL OF THEM are very costly to the industry & ENVIRONMENT. We can hugely improve the miscibility and “*pump-a-bility*” of heavy oils. This is a key problem in today’s market with more than 70% of remaining oil reserves being classified as “*Heavy Oil*”. We can relegate existing and future corrosion, wax, including legacy & crystalline waxes, scale, asphaltenes, BSW, drag reduction, emulsions, sludging, phased separation, etc. to being problems of the past. Our “*single, multi-faceted*”, chemical is totally, “*environmentally friendly*”, is water miscible and “*non-toxic*”, fully compatible with crude oil, brine and production water in the oil stream. **PMI-107** will revolutionise the Oil industry, while dramatically reducing costs!

The accumulation of waxes and the onset of corrosion are endemic throughout the entire sequence of stages in the production and transportation system of the oil and gas sector. Not only do they form deposits on the surfaces of fixed structures, (pipes, tanks, etc.) and moving components such as pumps and valves, they also cause sludge build up which restricts capacity, pressures and flow assurance. These can all be readily addressed and resolved by the appropriate and very simple application of **PMI-107**. We can all but eliminate corrosion, massively improving the Whole of Life, “*W.O.L.*”, of major pipeline assets saving the industry \$billion’s.

The **PMI-107** system will outperform all other conventional products and treatment methods currently available. We have a wide range of other services to help your company with solutions to many current operational problems and concerns. We recommend an initial meeting with your team to give us a full understanding of existing problems and to provide your team with appropriate information of what is possible.

We like to start with a presentation and a site visit to identify the problem pipelines, crude tank farms, facilities, etc. The first step is to take a thermal image of the tanks and determine if they would need the sludge mobilized before an injection program upstream is started. This is a simple, non-invasive process in which our certified thermograph technician, will visit your site and take images of your tanks. We provide a



report on each tank and a recommended solution to mobilize up to 100% of the organics that up to now have caused operational problems, resulting in lost revenue. These organics form part of the value stream which we will re-enable, “re-suspend” and hand back to production, which increases both value and quality.

We will mobilize the tank sludge, “*which is largely made up of waxes and asphaltenes*”. We use minimal intervention without requiring any downtime and the recovered material will generate real revenue for you. We can break any emulsion problems leaving you with close to a 0% BSW resulting in reduced dockage costs! At the same time there are no expensive environmental charges arising from disposal because most, to all of the original sludge is re-suspended and returned to production. We have a non-entry sludge removal system for tanks that are online and we have the capabilities of cleaning the offline tanks also.

The next stage is to move upstream to the production facilities and clean the oil/water separators, heaters, hydro cyclones, piping, condensing towers, flare knock out drums, slug catchers, etc. We normally install injection pumps at strategic points in the various locations that will allow for a beneficial, slow and steady release of any build-up of wax, asphaltenes, scale, etc. This will never create a problem as we remove this legacy waste, molecule by molecule unlike other treatments which often cause blockages in expensive and critical assets.

Pipelines are the backbone for all production facilities and the treatment of these forms an integral part of our procedures. Our approach is to inject **PMI-107** into the system, using existing injection systems, no need to change assets. The pipelines will be cleaned and brought back to near perfect condition and can be maintained in this state. This is in addition to the corrosion inhibiting properties of our product. This procedure overcomes problems of reduced flow, increased pressures, corrosion and scaling efficiently and economically. There will be no more requirement to over pump or increase pressures that find or create leaks in pipelines, flanges and valves. In direct contrast our system ensures reduced pressures but increased flow rates, exactly what the operator needs.

The final stage of our recommended procedure is to move our injection services upstream to an MSV or direct backside injection into problem wells. The result is to keep the system clean and flowing. This part of the procedure will start as a cleaning activity which will then be optimized to a maintenance program by reducing the rate of chemical application to an appropriate level to prevent future build up and prevent drag reduction.

As we set up the injection program at the well annulus, we will perform a well stimulation to increase production. We typically improve well production by many hundreds of percent, this is normal for us. We are able to load the backside of the well with **PMI-107** chemical and install a slow dosing chemical injection pump. We remove waxes and asphaltenes from the near well bore & massively improve the production flow of the well. It is recommended to do a well stimulation once a year to keep the



down hole clear and flowing and ensure that the chemical is dosing properly. Our system will lift waxes and asphaltenes from the well and prevent it building back up. This provides the operator with a clean flowing well with increased productivity.

With our injection program using **PMI-107** the environmental pits and lagoons will start to clean themselves. Much of the pressure is taken off, because most to all of the sludge's are eliminated and there will be noticeable, dramatic decreases of emulsified oil in the water. As part of our service, we are also able to come to site and clean existing pits and help with soil remediation programs and systems, again using only environmentally friendly techniques and products.

The **PMI-107** chemical offers a major benefit for any enhanced oil recovery project in terms of performance and cost benefits. Once the system is clean, production will increase with a far more environmentally friendly and effective technology.

We can provide a wide range of "*in-house*", products and services, these are fully tested and approved. We have a real world experience with proven technologies which allows us to say with confidence, "This is what we recommend!" Our slogan is, "*MAKING OIL BETTER*", we really provide the medicine required for all oil.