



- This week the reduced production by Saudi Arabia since December 2018, and its pledge to deeper production cuts if required, reduced crude supplies entering the market from Venezuela and Iran due to US sanctions, the anticipation about expiration of waivers to 8 countries importing Iranian oil in May, no hopes of US-China trade talks soon, the news that President Trump might extend the deadline for additional tariffs on China, and the reduced global growth as predicted by IEA, are the factors that affected the price of crude

oil. Added to this would be the Brexit issue and the slowdown of the Chinese economy. Overall the price of the barrel looked up.

- Nigeria's production averaged 1.792 mb/d in January and is likely to pump 1.685 mb/d in the first half of 2019. But the interesting thing is that Nigeria is about to ship its first cargo of crude oil from its new field, Egina, 90 miles off its coast. The 1 mb consignment is supposed to leave the country soon, and at a time when it is supposed to lower its production by 53,000 b/d. Nigeria's minister of state for Petroleum Resources said that the oil from the new field may be classified as a condensate and so not bound by OPEC+ curbs. Condensate (with API above 45°) are hydrocarbons that are gases at reservoir temperature and pressure but condense into liquids at the surface. They come from gas fields, while oil comes from oil fields.

So much for the industry news this week.

For the lighter side this week

Quite often the term 'condensate' figures in a chat or a formal talk that one may be participating in. But at times the meaning of the term is not always clear to the folks as I realized recently. So, I will try and clarify it here.

Deep down in the subsurface reservoir, if the hydrocarbons are in the liquid phase, and on reaching the surface (where both the temperature and pressure are lowered), the hydrocarbons stay in the liquid form, they are referred to as crude oils. The dissolved gas in the crude oil is usually liberated in such cases and collected separately. If the reservoir fluids exist as vapour in the subsurface and are collected as liquids on the surface where the temperature and pressure are lower, they are referred to as condensates, or ultra-light crude. They usually occur as by-products of natural production. Appearance-wise, condensates are lighter in colour, almost transparent, but vary from water-clear to straw-yellow, greenish, brownish to deep black. They are close to odourless. Traditionally, Russia, the Middle East and Australia have been the biggest producers of condensates.

Condensates have increasingly been used to dilute heavier crude for transporting them in pipelines and before they can be used as feedstock in refineries. They are also used for making plastic. Condensates are low in density, are toxic and more explosive than crude oil.

As the density of crude oil is usually measured in terms of API gravity, industry insiders like to apply the same measure to condensates. Thus, WTI has API gravity of 39 degrees, Brent has 35 degrees and Mexican Maya crude is at 20 degrees. Crudes with API exceeding 39 degrees are considered as light, those with API less than 22 are heavy, and those in the range 22 to 38 API are intermediate crudes. Though there is no formal demarcation, the generally accepted delineation between condensate and crude oil is 45 API. Any hydrocarbon fluid above 45 API may be considered a condensate. All this seems quite reasonable with the conventionally produced crude oil. But what about the record production of shale oil boom in the US, especially from Ohio and Texas, where the production comes from the three different maturity windows comprising

the gas, condensates and oil? Many oil companies opine that production from the shales should be classified as condensate in the API range of 45 to 70 degrees.

Eagle Ford light oil has 52 API, Bakken is in the 42-44 API range. In general, compared with heavy crude, larger quantities of light crudes could be required for producing the same quantities of gasoline and diesel fuels. The added advantage is that refineries do not require complex processes to refine light crude. In the US, large scale production of light crudes waned in the 1970s and thus refineries have been upgraded since then or set up for processing heavy crudes. To again switch back to refining lighter crudes generated as a result of shale oil revolution, requires heavy investments. At the present time, the lighter grades are either being used as diluents or are being exported.

It may also be mentioned appropriately here that on a carbon number scale, the condensates typically have between C4 and C12 carbon atoms in each molecule. On the other extreme bitumen has over C35 and higher. The conventional crude oils fall in between. As the general formula for hydrocarbons can be considered close to $(CH_2)_n$, the energy content per unit measure is equivalent in that a barrel of 52 API condensate from Eagle Ford would probably have less energy than a barrel of 15 API heavy crude.

So much for this week! Till the next post, stay safe and happy!