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## ULTRA LOW SULPHUR DIESEL IS COMING; EXPECT TO PAY MORE!

Whether you know it and are prepared for it or not, expect higher prices for diesel fuel as early as this June. Expect the price to increase about two cents per litre minimum. And this is one time the blame can't be put on greedy oil companies but the U.S. Environmental Protection Agency.

When oil companies were asked by some of our clients for their forecast on the availability of Ultra Low Sulphur Diesel (ULSD) this past September, the answer can be summarized in the dated hit song "Don't Worry, Be Happy". To this we would suggest you listen to the flip side: "Just Worry, Be Wary". Although diesel prices appear now to be following historical fundamentals: high distillate inventories giving lower racks, low distillate inventories giving higher racks, we are predicting that the rules will change with the introduction of ULSD. This then will result in higher prices regardless of the status of either distillate or crude inventories. The following puts our reasoning into perspective.

ULSD is a direct result of the mandate from the Environmental Protection Agency (EPA) to the heavy duty engine manufacturers to reduce emissions by 90% with the 2007 model year. The new emission devices cannot tolerate today's 500 ppm maximum sulphur levels in diesel fuel, so the EPA required the sulphur level to be reduced to the ULSD of 15 ppm maximum.

The current timing on the introduction of ULSD in the U.S. is June 1<sup>st</sup> at the refinery gate and October 15<sup>th</sup> at the retail level. However, during this period, 22 ppm fuel will be considered ULSD. In Canada the dates are June 1<sup>st</sup> and September 1<sup>st</sup> with no allowance for fuel with greater than 15 ppm allowed. So the problem is we have not only an overlap in implementation dates but also different specification allowances!

The most efficient way to move natural gas, crude, gasoline, diesel, marine fuel and jet fuel is by pipeline, but these pipelines are not dedicated to any one product and that is the most important problem in bringing ULSD to the market. At any given time a pipeline can have several products of varying levels of sulphur content moving along the line. For example off-road and rail diesel may contain up to 5,000 ppm sulphur, while marine diesel levels can hit 10,000 ppm and even heating oil can contain up to 5,000 ppm sulphur. So the problem is how to avoid contamination of ULSD by keeping the product at 15 ppm.

The pipelines are only one segment of the contamination chain reaction. For ULSD to reach the consumer's tank contamination can occur at: ships and barges, pipelines, tanks, pipeline manifolds, loading arms, rail and truck compartments, unloading hoses and metering systems. If contamination occurs whereby ULSD exceeds 15 ppm sulphur, the product will have to be downgraded or reprocessed at the nearest refinery or reprocessed on site.

Each time the ULSD changes into a different form of transport (as an example from pipeline to truck or pipeline to pipeline) is called a "hand-off" and this is where the problems occur. Each hand-off increases the sulphur level by 1.5 to 2 ppm. As an illustration of a hand-off sulphur boost let's move ULSD from Edmonton to Thunder Bay. From the refinery it enters the Enbridge pipeline (a line that also carries natural gas liquids, synthetic crude as well as gasoline and distillates) to the breakout tankage at Gretna, then enters the Winnipeg pipeline, to the breakout tankage in Winnipeg. After that it is railed to Thunder Bay after which it is shipped by tri-axle truck to bulk plants and then finally by yet a different truck to the customer. That's six hand offs. Assuming a boost of 1.5 ppm per hand-off, that's a 9 ppm increase.

The target at the refinery level for sulphur in ULSD is 8 ppm. Add the 9 ppm accumulated in the shipment, and the product is above the compliance level of 15 ppm max.

The solution would appear to be obvious by reducing the sulphur at the refinery but many refineries are not willing or able to do this and will simply not produce ULSD but merely sell LSD to the off-road market. If we use the 8 ppm at the refinery level as the base number then 53 refineries in the US would fail to meet the standard.

Under NAFTA, the Canadian oil companies are free to import or export ULSD to the US. The scenario as it looks now is that demand from the US is going to drive up prices in Canada as the US will be short on refining ability and pipeline contamination with the resultant interruption in flow of the product to the end user will plague pipeline systems on both sides of the border. If there is an interruption of movement along any pipeline due to sulphur contamination this will not only affect ULSD but also create shortages of gasoline and all other distillates.

This price increase will impact everybody.

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