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used oil | parts cleaning | anti-freeze | filters & absorbents | wastewater | chemicals

Mike Ditka

Conference Keynote Speaker

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2019 NORA Annual Conference & Trade Show

November 13-16, 2019 | Naples, Florida

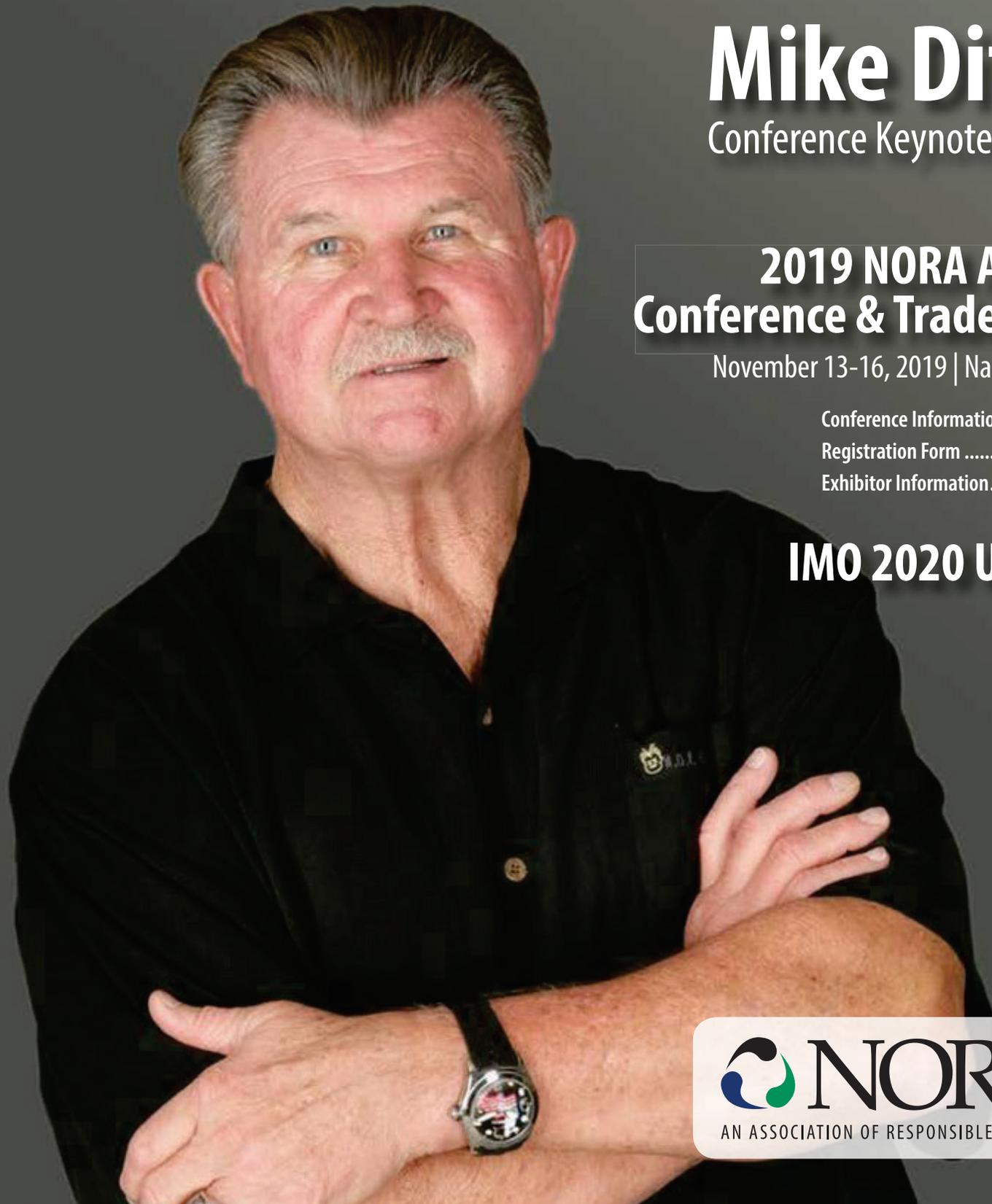
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IMO 2020 Update

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IMO 2020 Update - August 2019



Tom Murray

The global sulfur cap of 0.5% on high seas marine fuels (IMO 2020) will take effect on January 1, 2020, just 4.5 months away, and will apply to all vessels without Exhaust Gas Cleaning Systems (aka scrubbers). Some clear trends resulting from IMO 2020 are emerging, but many major uncertainties still remain unresolved.

High Sulfur Fuel Oil (HSFO) Market Shift

The shift away from HSFO has already started and HSFO's price versus WTI recently dropped by approximately 23%, breaking its highly unusual near parity trading relationship to WTI in the first half of 2019. Looking ahead, futures markets indicate a further 16% HSFO price decline versus crude oil (WTI) in January 2020, although futures markets can be inaccurate predictors of future physical prices. Futures market prices are driven by the current long/short positions of hedgers and speculators whereas actual physical prices are predicated on the supply-demand balances at the time. HSFO's current and forecasted price declines are consistent with an expected HSFO demand decrease of approximately 60%, or roughly 32 billion gallons per year (bgpy). In comparison, this decrease is over 4x the total quantity of used lubricating oil (ULO) currently generated worldwide. Much of the current ULO volume is blended into HSFO and competitive HSFO providers who are not blending ULO are already displacing blenders purchasing ULO. ULO is already backing up in some markets and the traditional discount of ULO to HSFO will probably increase further as ULO demand declines.

Scrubber Deployment

Scrubber installations (scrubbers allow ships to burn HSFO) by 2020 can now safely be forecasted to be woefully inadequate to support historical HSFO demand. Absent scrubber equipped ships creating enough demand for HSFO, what markets can absorb the huge excess HSFO production? How far will HSFO prices decline to clear alternative market outlets? These uncertainties are large and yet to be resolved.

Storage

The two replacement fuels for HSFO are Marine Gas Oil (MGO, much of which is <0.1% sulfur) and Very Low Sulfur Fuel Oil (VLSFO, which is <0.5% sulfur and thus IMO 2020 compliant). In 2020 demand for VLSFO and MGO is forecasted to increase by roughly 15 billion gallons per year (bgpy) and 17 bgpy, respectively. Since a new fuel is being added to the market (VLSFO) and a current fuel will more than double in volume (MGO), tanks are now being re-purposed from HSFO to store the increased MGO and VLSFO. But some HSFO will still be needed and thus storage is warranted, with the net result being a massive increase in storage demand. Large ships are now being chartered to store VLSFO in Singapore (which as a port has as much marine fuel demand as the next 8 largest ports combined) for near term delivery as VLSFO demand skyrockets in late Q3 and Q4. The massively large volume increases of MGO and VLSFO fuels competing for limited tankage create a high bar for sales of low volume, off-spec product that is neither MGO nor VLSFO.

VLSFO Specifications

Release of the Publicly Available Specification (PAS 23263) specification for VLSFO has been delayed, placing ship owners at a disadvantage since there is still no benchmark against which VLSFO quality can be measured. Conversely major fuel oil refiners are representing that their fuels will be IMO 2020 compliant, offering real data from ships which have already burned their fuel in extensive ship testing programs, thus reassuring very nervous ship owners who are worried about the quality of VLSFO blends. This squeezes independent traders

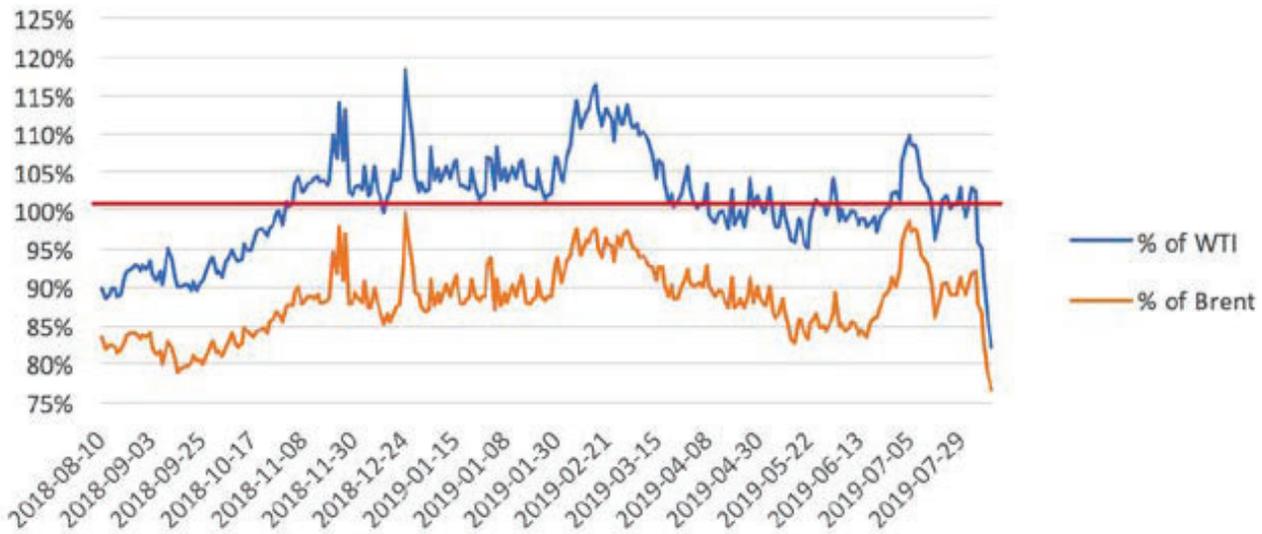


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HSFO Price as % of WTI and Brent Crude Price - TTM months



Source: S&P Global/Platts

and brokers which lack access to IMO 2020 compliant fuels and will likely result in a future market share shift toward large marine fuels refiners.

VLSFO Quality Concerns

FOBAS reports (Fuel Oil Bunker Advisory Service, alerting ship owners to fuel oil quality issues) are on the rise, heightening ship owners' concerns about VLSFO, much of which is produced from blends of many different streams. Since MGO carries tight specifications and has already proven to be safe, many risk averse ship owners will be opting to purchase MGO instead of VLSFO, even though MGO is relatively more expensive. Shipping contract terms are being revised to add surcharges passing increased fuel cost on to customers. Trust in VLSFO may build over time, but without any experience initially there will be intense scrutiny of all products marketed as VLSFO due to high uncertainty about quality and suitability.

VLSFO Production

Increasing numbers of dedicated VLSFO project completions or near-term start dates are being announced. For competitive reasons, most of these were not disclosed previously. Many of these will deliver VLSFO made from a single source of crude oil, thus providing ship owners with much needed assurances as to consistency and quality. These projects tend to be large, in the range of 50,000 bpd (750 million gallons per year) or more. Along with VLSFO supply provided by major refiners, these one source VLSFO projects will provide ship owners with another low risk supply of VLSFO.

ULO to Vacuum Gas Oil (ULO-VGO)

By early 2020 approximately 30% of all ULO in the United States (or approximately 300 million gallons) is expected to be processed into ULO-VGO. However, acceptance of ULO-VGO as a VLSFO blend stock is still uncertain. Handicapping future acceptance of ULO-VGO is difficult given the nature and consistency of VLSFO blends will vary widely (which is why ship owners are very nervous about VLSFO). If ULO-

VGO turns out to be unsuitable, or only marginally suitable, as VLSFO blend stock this could lead to downward price pressure on ULO as ULO-VGO is directed to lower valued markets. Typical ULO-VGO has positive and negative characteristics as a marine fuel blend stock. On the positive side, ULO-VGO is low in sulfur (even below 0.1%), low in ash, and has excellent lubricity. On the negative side ULO-VGO is highly unstable (creating its own sediment), is hyper-compatible with aromatics (leading to asphaltene precipitation), and carries impurities (some of which have resulted in catastrophic machinery failure). Should resistance to ULO-VGO as VLSFO blend stock develop, alternative processing options may emerge to upgrade ULO-VGO into higher quality marine fuels or even base oils, although implementing these upgrades may take months or years.

Even aside from IMO 2020 uncertainties for ULO are other substantial macro-economic uncertainties such as a potential slowdown in economic growth (thus leading to decreased crude oil demand and prices) and a possible reduction in trade resulting from tariff wars (thus reducing aggregate demand for marine fuels). In any event, greater certainty should develop soon as solutions emerge to address the massive near-term market shift which will occur over the next 4. 5 months. ■

Tom Murray has developed technologies for processing used oil for over 2 decades with 4 issued patents and multiple pending patents. The technologies enable production of premium quality marine fuels and base oils from used lubricating oils. Comments on this article as well as industry developments and opportunities are encouraged and may be directed to tgm@modernfuels.com or 940-300-8790.



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