

COW entering new pastures?

The use of crude oil washing (COW) - using the cargo itself as the washing medium - was made mandatory for new crude oil tankers under the 1978 Protocol to the International Convention for the Prevention of Pollution by Ships (MARPOL 73/78). Although there is usually a final water rinse, the amount of water involved is very low. Cleaning with crude oil minimises contact between cargo and wash water and, thus, helps control operational pollution. In addition, the solvent action of the crude oil makes the cleaning process far more effective than when water is used, thus minimising the volume of cargo residue.

In combination with segregated ballast tanks, the use of COW under inerted conditions has also resulted in increased levels of safety for tankships, as it brought to an end the previous practice of washing tanks with strong jets of heated sea water. This practice results in the generation of static electricity, as highlighted by several notable explosions incidents onboard tankers on ballast voyages some 30 years ago.

Regulation 13(6) of MARPOL Annex I requires every new crude oil tanker of 20,000 tons deadweight and above to be fitted with a crude oil washing cargo tank cleaning system. Regulation 13B states that a tanker's COW installation and arrangements must comply with the provisions of the Specifications for the Design, Operation and Control of Crude Oil Washing Systems, i.e. the COW Manual.

As a result of work carried out under the industry-led study on the Physical behaviour of Crude Oil Influencing its Carriage by Sea (CRUCOGSA), IMO adopted changes to the COW Manual in 1999, specifically Section 9. This work reflected the discovery that a crude oil's cloud point is a much better parameter than the previously used pour point for gauging the correct temperature to which the crude oil washing medium should be raised in order to minimise the precipitation of cargo sludge.

The minimisation of cargo sludge formation is important for corrosion and pollutant control as well as improving cargo outturns. Experience with cargo tank bottom plating corrosion onboard new double-hull tankers after only a relatively short time in service has focused attention on the role of sludge as an aid to corrosion.

As part of the ongoing CRUCOGSA work, the CRUCLEAN project is being launched to improve the effectiveness and efficiency of crude oil washing in order to reduce corrosion and minimise the generation of pollutant sludge. In the second quarter of 2002 a new type of COW machine, with modified wash guns, is to be installed in a tanker during a visit to drydock in order to carry out series of trials.

Besides varying the profile and mechanics of the wash gun, it is also anticipated that other variables will be investigated, such as the addition of solvent material to the crude oil and altering machine pressures (see Tanker Operator February 2002, page 1).