

USE OF NET SYSTEMS FOR HEAVY OIL RECOVERY, INCLUDING TARBALLS FLOATING SUB-SURFACE

Having noted the controversy over the matter of whether dilbit (diluted bitumen) sinks or floats (or both) it does seem that, notwithstanding a time window during which surface skimming operations can be productive, problems of floating sub-surface accumulations will be encountered in addition to deposition of the material on the sea bed. There are skimmers that are effective in recovering surface-floating dilbit; the US Coast Guard R&D Centre has assessed systems for recovery of oil on the ocean floor (see report in ISCO Newsletter 316) – but what work has been done recently in advancing systems for collecting oil floating sub-surface? Readers are invited to comment.

Systems developed for recovery of sub-surface negative buoyancy oil, tarmats and tarballs may be relevant.

The use of oil collecting systems based on the application of fishing industry experience was pioneered in Scotland many years ago. Arthur Buchan of Jackson Trawls Ltd. participated in trials with the UK's Warren Spring Laboratory (WSL) and a report was published by WSL.

Jackson Trawls, located in Peterhead, Scotland, manufactures the Jackson Net Boom (JNB) and also produce the Jackson Trawl Net Collection System. This system consists in two wings each of 25 m. of 1.5 m. JNB attached via universal boom connectors to a Trawl Sock adaptor box, fitted with side buoyancy floats and quick release Net Sock connector ring.

The wings of the trawl can be connected to any other make of oil boom and towed between two vessels or deployed over-the-side of a single vessel from a suitable jib.

The trawl-sock filled, the choke line is tightened to prevent the escape of collected oil and the sock released by pulling the line attached to the quick-release ring. The full sock can then be buoyed off or towed away to be emptied and cleaned for re-use.

A major advantage of the system is its ability to collect tarballs and tarmats that are floating sub-surface in the water column. <http://www.jacksontrawls.co.uk/>

A variant of a net collection system was the subject of a short article in the ISCO Newsletter No. 241 of 19th July 2010. This article is reproduced below –

Just weeks after the first Heavy Oil Recovery Device (HORD) was successfully tested in the Gulf of Mexico off the shores of Alabama, the innovative devices are greatly improving the efficiency and effectiveness of the cleanup operation. The HORD, originally dubbed Tarball Retrieval Device, is being manufactured at the rate of 8-10 units per day in shipyards in Pensacola, Fla., and Bayou La Batre, Ala. Up to 1,000 units are expected to be manufactured and put into service in the coming weeks.

The HORD has proven to be especially effective in collecting the thick, heavy oil that hampers traditional skimming methods. It is also able to cleanup the extremely light and difficult to remove sheen left on the water surface after skimming.

The brainchild of Capt. Gerry Matherne, the HORD exemplifies the adage "necessity is the mother of invention." Matherne, a supertanker captain and second generation seaman, who is under contract with BP, realized early on that something different was needed to quickly and effectively deal with the sticky, orange globs of oil (known as tarballs) floating just under the water's surface.

"Standard skimming methods work best on fresh oil on the water's surface. A lot of the oil we're dealing with on the Gulf has degraded, changing from a liquid state to a peanut butter-like consistency that floats on the surface and 12 to 18 inches below the surface," said Matherne. "The HORD reflects creative thinking, a willingness to try new things and a can-do attitude by everyone involved with the clean-up."

Matherne's invention is essentially a single unit that acts as a filter, containment and disposal system rolled into one. A mesh bag held open by a 3-foot by 3-foot aluminum frame is dragged through the water by shrimp boats put into service as skimmers. The cage-like device scoops up surface oil and sheen, as well as the thick oil lurking beneath the surface of the water. When the bags reach their two-ton capacity, they are switched out for empty ones, loaded onto smaller boats and transported to approved oil disposal units. The bags are later decontaminated and reused.

The total downtime for skimmers outfitted with HORDs is measured in minutes, compared to hours or days for a traditional skimmer that has to transport the captured oil to disposal units and wait to be unloaded, before returning to sea. In addition to saving precious time, the HORD's simple design greatly improves a boat's maneuverability and ability to safely perform at faster speeds and in higher seas. [Source: Press Release from Deepwater Horizon Mobile Joint Information Center]. For more information, see <http://www.restorethegulf.gov/release/2010/07/05/new-heavy-oil-recovery-device-improves-oil-recovery-efforts-gulf-brings-work-loca>

