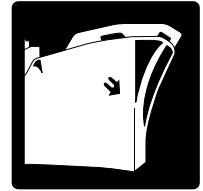


MARINE CRUDE LIGHTERING AND UNLOADING THE KAM® OWD® OIL WATER DETECTOR



PROBLEM: The previous method for monitoring water percentages in crude lightering and/or unloading was by product sampling. Sampling is expensive, time consuming, and vulnerable to inaccuracies. Small amounts of water contamination in a single sample represent thousands of gallons of water in actual custody transfer.

SOLUTION: Placing a KAM® OWD® on the incoming or lightering line provides real-time, highly accurate measurement of water percentages. It also enables automatic ticketing, and reduces or eliminates the need for sampling. When paired with a flow meter, the OWD provides a true, net-oil solution.

MORE EFFICIENCY, ACCURACY, AND SAVINGS

- Real-time monitoring of water levels in incoming crude
- Can be used to first establish then apply "Industry Best Practices" for crude unloading
- Eliminates the need for random delivery sampling
- Helps prevent paying for water versus crude
- Electronics and sensor housed in a single unit for more flexible and simpler installation
- Prevents costly shut downs and disruptions due to high water
- Accuracy of actual volume measurement vs. representative sampling

FLEXIBILITY AND EASE OF INSTALLATION



KAM® OWD™
OIL WATER DETECTOR
with 2" MNPT seal housing.

Also available with 2", 3", or 4"
flanged seal housing.

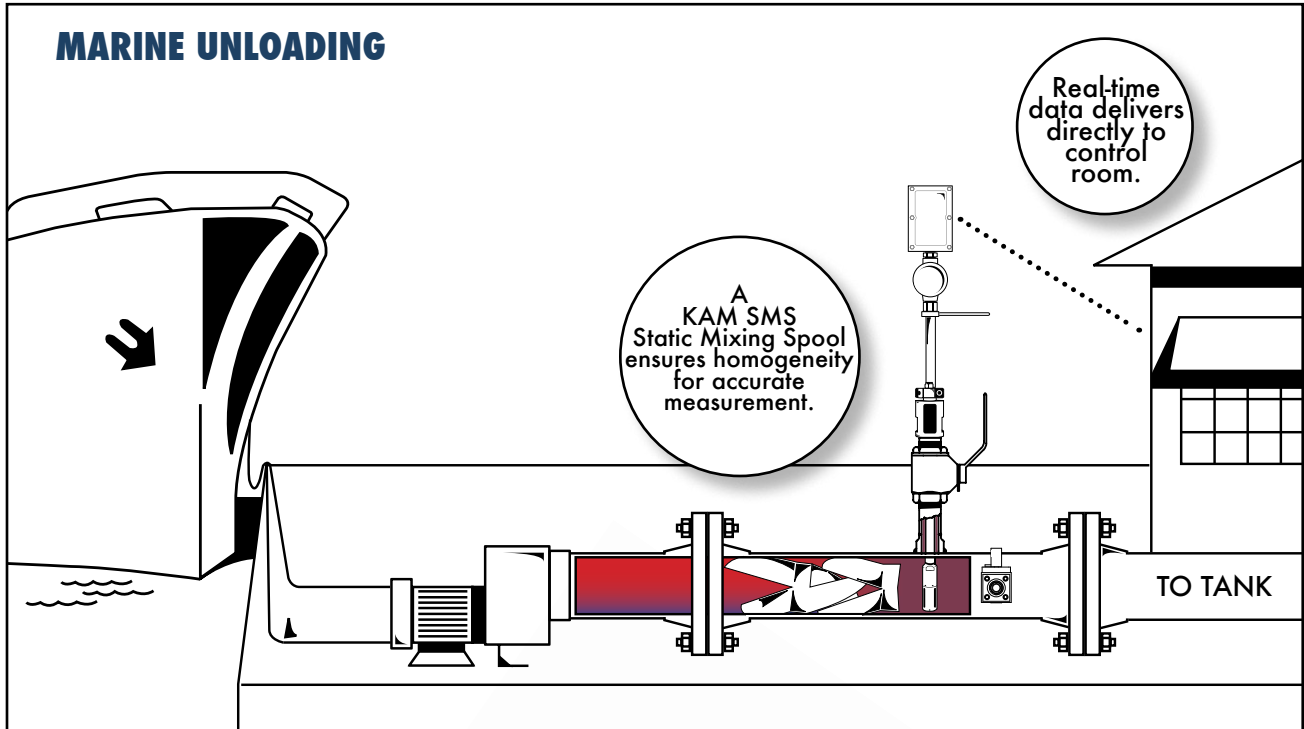


KAM® OWD™
OIL WATER DETECTOR
on 2" seamless pipe with
weld-neck flanges; Integrated
KAM® SMS® Static Mixing Spool;
½" sample valve with
½" pitot probe

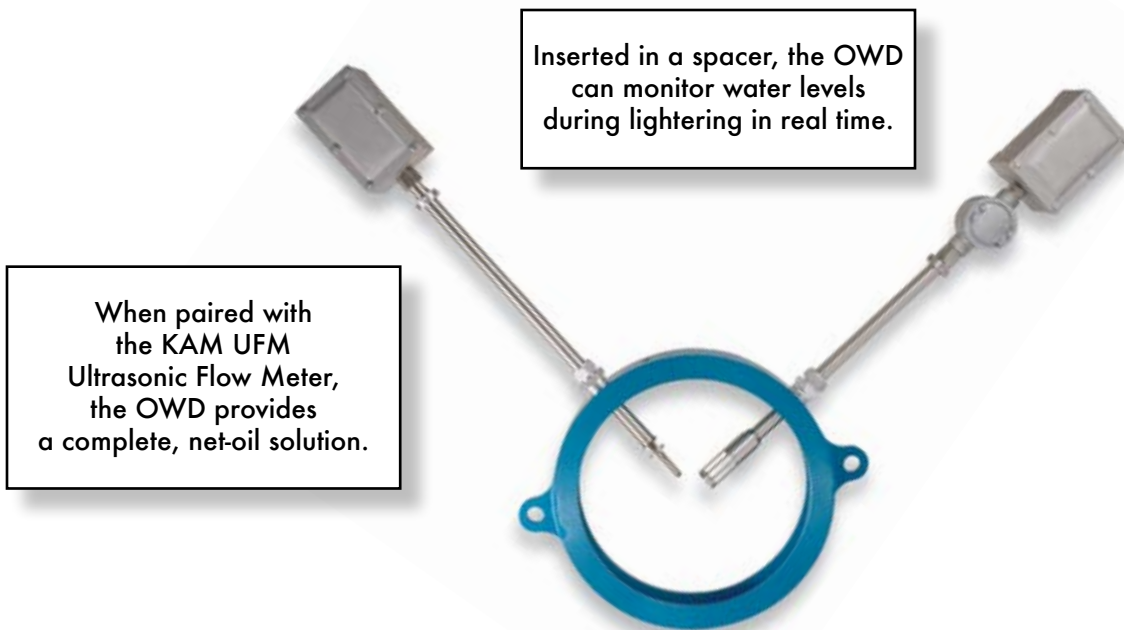
MARINE CRUDE LIGHTERING AND UNLOADING

THE KAM® OWD® OIL WATER DETECTOR

The KAM® OWD™ Oil Water Detector provides real-time monitoring of water levels in incoming crude.



LIGHTERING



MARINE CRUDE LIGHTERING AND UNLOADING

THE KAM® OWD® OIL WATER DETECTOR

THE HIGH COST OF LOW ACCURACY

ONE MILLION BARREL TRANSACTION

COST/BARREL	0.05% ERROR	0.1% ERROR	0.5% ERROR	1% ERROR	2% ERROR	5% ERROR
\$30	\$15,000	\$30,000	\$150,000	\$300,000	\$600,000	\$1,500,000
\$40	\$20,000	\$40,000	\$200,000	\$400,000	\$800,000	\$2,000,000
\$50	\$25,000	\$50,000	\$250,000	\$500,000	\$1,000,000	\$2,500,000
\$60	\$30,000	\$60,000	\$300,000	\$600,000	\$1,200,000	\$3,000,000
\$70	\$35,000	\$70,000	\$350,000	\$700,000	\$1,400,000	\$3,500,000
\$80	\$40,000	\$80,000	\$400,000	\$800,000	\$1,600,000	\$4,000,000
\$90	\$45,000	\$90,000	\$450,000	\$900,000	\$1,800,000	\$4,500,000
\$100	\$50,000	\$100,000	\$500,000	\$1,000,000	\$2,000,000	\$5,000,000

% ERROR REFLECTS AN UNDER MEASUREMENT OF ACTUAL WATER IN OIL

 POINT AT WHICH AN INSTALLED OWD PAYS FOR ITSELF IN A SINGLE MILLION BARREL TRANSACTION

