

# SAFETY SENSE

## Water Tractors Help Keep Sea Lanes Safe

(NAPSA)—The jaunty little tug boat you may remember from children's books has been replaced on many of the world's most environmentally sensitive waterways by a new breed of tender, a water tractor. The difference between the two is that the tug boat can only push or pull while the Water Tractor can instantly supply force in any direction that is required.

That's very important when the vessel being escorted is one of today's giant oil tankers because any mishap has the potential to cause severe environmental damage. These ships often have to navigate narrow, winding channels in places like the Bosphorus, the Suez Canal and many other places around the world.

Economics demand these passages be made at the highest possible transit speeds, while safety demands complete control over all vessel movements, even in the case of a catastrophic simultaneous failure of both propulsion and steering systems. A solution to both requirements is called the Voith Water Tractor, which has been recognized as the "Best Available Technology" by the Alaskan environmental authority and is in operation at more than 120 ports worldwide.

### How It Works

The key technology behind the water tractor is a unique Voith Schneider propeller system that gives the water tractor the ability



**"AJAX" IN NORWAY**—The most powerful Water Tractor in service is operated by Norsk Hydro at its Sture Terminal in Norway.

to instantly supply thrust in any required direction. The propeller uses several airfoil-shaped blades that project vertically from the bottom of the vessel. As the blades rotate, they are also pivoting around their long axes to produce a motion much like that of a fish's tail as it swims. By changing the pivoting angle of the blades while they're rotating, thrust can be generated in any desired direction.

### A Modern "Ajax"

Today, the most powerful water tractor in service is operated by Norsk Hydro at its Sture terminal in Norway. The "Ajax" has a total power output of 10,000 hp, a static towrope pull of 95 tons and a steering force of 150 tons at an escort speed of 10 knots. Delivered in 1999 it joined more than 800 Water Tractors in service around the world. Other Voith Water Tractors are at work as fireboats, recovery vessels, oil-spill control ships, and platform supply vessels.