Abstract

Pumping fluids recovered in a marine oil spill cleanup can be problematic, particularly in cold temperatures. The high viscosity and high pour point of weathered crude oils and emulsions can lead to difficulties in pumping operations and impose a severe bottleneck in an ongoing operation.

In a series of projects over the past seven years, various aspects of dealing with cold, viscous oils and emulsions have been investigated. Specifically, individual tests have demonstrated the following:

1. Annular water injection to reduce line pressures, to facilitate pumping at higher rates and over longer distances than would otherwise be possible,
2. Viscosity reduction through the use of emulsion-breaking chemicals,
3. Steam heating to warm the contents of a mini-barge to facilitate flow,
4. Small portable pumps vs. large positive displacement pumps, and
5. The flow properties of weathered oils at temperatures significantly below their pour points.