**In Situ Burning for Oil Spills in Ice-Covered Waters**

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**Abstract**  
*In situ* burning is one of the few practical options for removing oil spilled in ice-covered waters. In many instances *in situ* burning, combined with surveillance and monitoring, may be the only response possible. As with all countermeasures in any environment, the suitability of burning a particular spill depends on the characteristics of the spilled oil and how the oil behaves in the particular ice conditions. There is an extensive body of knowledge concerning *in situ* burning of oil in ice situations, beginning with laboratory, tank and field studies in the mid-1970s in support of drilling in the Canadian Beaufort Sea. *In situ* burning research has been conducted primarily in Canada, Norway and the United States. This paper serves as a review of the subject, incorporating recent research results, summarizing the following topics:  
- The basic requirements and processes involved with *in situ* burning;  
- Trade-offs associated with burning in ice-covered waters;  
- How oil spill behavior in various ice conditions controls *in situ* burning;  
- The application of burning in various common ice situations;  
- *In situ* burning of oil spills in snow.