



Standard Guide for In-Situ Burning of Oil Spills on Water: Environmental and Operational Considerations¹

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1. Scope

1.1 This guide covers the use of in-situ burning to assist in the control of oil spills on water. This guide is not applicable to in-situ burning of oil on land.

1.2 The purpose of this guide is to provide information that will enable spill responders to decide if burning will be used as part of the oil spill cleanup response. Other standards address the use of ignition devices (Guide F1990), the use of fire-resistant boom (Guide F2152), the use of burning in ice conditions (Guide F2230), the application of in-situ burning in ships (Guide F2533), and the use of in-situ burning in marshes (Guide F2823).

1.3 This is a general guide only. It is assumed that conditions at the spill site have been assessed and that these conditions are suitable for the burning of oil. It is also assumed that permission to burn the oil has been obtained from appropriate regulatory authorities. Variations in the behavior of different oil types are not dealt with and may change some of the parameters noted in this guide.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4.1 *Exception*—Alternate units are included in 7.5, 7.7, and 7.8.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

F1990 Guide for In-Situ Burning of Spilled Oil: Ignition Devices

F2152 Guide for In-Situ Burning of Spilled Oil: Fire-Resistant Boom

F2230 Guide for In-situ Burning of Oil Spills on Water: Ice Conditions

F2533 Guide for In-Situ Burning of Oil in Ships or Other Vessels

F2823 Guide for In-Situ Burning of Oil Spills in Marshes

3. Terminology

3.1 Definitions:

3.1.1 *burn efficiency*—burn efficiency is the percentage of the oil removed from the water by the burning.

3.1.1.1 *Discussion*—Burn efficiency is the amount (volume) of oil before burning; less the volume remaining as a residue, divided by the initial volume of the oil.

3.1.2 *burn rate*—the rate at which oil is burned in a given area.

3.1.2.1 *Discussion*—Typically, the area is a pool and burn rate is the regression rate of the burning liquid, or may be described as a volumetric rate.

3.1.3 *contact probability*—the probability that oil will be contacted by the flame during burning.

3.1.4 *controlled burning*—burning when the combustion can be started and stopped by human intervention.

3.1.5 *fire-resistant booms*—booms intended for containment of burning oil slicks (Guide F2152).

3.1.6 *in-situ burning*—use of burning directly on the water surface.

3.1.6.1 *Discussion*—In-situ burning does not include incineration techniques, whereby oil or oiled debris are placed into an incinerator.

¹ This guide is under the jurisdiction of ASTM Committee F20 on Hazardous Substances and Oil Spill Response and is the direct responsibility of Subcommittee F20.15 on In-Situ Burning.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.