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# Standard Guide for Qualitative Observations of Skimmer Performance[1]

This standard is issued under the fixed designation F2008; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This guide covers evaluating a number of qualitative performance parameters for full-scale oil spill removal systems or individual components of those systems. It is intended to complement the quantitative testing covered in Guide F631.

1.2 This guide is intended for potential purchasers of oil spill removal equipment to ensure that suppliers meet their needs and expectations.

1.3 This guide requires a subjective evaluation that could vary widely when completed by different organizations. As such, its main use would be as a means of comparing different skimmers for a particular organization or application.

1.4 Not all of the items in this guide would apply to a particular skimmer or to a particular cleanup application. Prior to using this guide, users should carefully review the entire contents and note those areas that are most important to their needs. In particular, qualitative evaluation of items such as workmanship of construction may not be applicable to prototype skimmers.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* Specific safety precautions are given in Section 9.

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*[2]

F625 Practice for Classifying Water Bodies for Spill Control Systems

F631 Guide for Collecting Skimmer Performance Data in Controlled Environments

F1607 Guide for Reporting of Test Performance Data for Oil Spill Response Pumps

## 3. Terminology

3.1 *Definitions:*

3.1.1 *production skimmer*—full-scale device supplied for testing and indicated by the manufacturer to be commercially available.

3.1.2 *prototype skimmer*—device indicated by the developer or manufacturer, or both, as being in the developmental stage and not for sale on the commercial market.

3.1.3 *qualitative performance data*—characteristics recorded during the evaluation period other than those specified by Guide F631.

## 4. Significance and Use

4.1 This guide provides procedures enabling the recording of qualitative performance information under controlled test conditions. This information can be used together with quantitative data to comprehensively evaluate a particular spill removal device or as a means of comparing two or more devices.

4.2 Although the qualitative assessment described in this guide can be somewhat subjective, it is an important part of the overall evaluation of a spill removal device. This guide covers performance factors other than recovery rate and efficiency that will affect the device's performance in an actual spill. Their consideration allows the comprehensive evaluation or comparison of spill removal devices.

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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.

4.3 Caution must be exercised whenever test data are used to predict performance in actual spill situations as the uncontrolled environmental conditions that affect performance in the field are rarely identical to conditions in the test tank.

4.4 Portions of this guide are specifically intended for skimmers with hydraulic power supplies. This is not intended to limit application of this guide to skimmers with other power supplies such as electric or pneumatic.

## 5. Summary of Guide

5.1 The spill removal device may be tested in a wave/tow tank, flume or other facility that is suitable for observing and recording appropriate operational performance factors. Significant testing results can be obtained using simple test tanks or ponds, particularly when calm water, stationary or low velocity advancing tests are desired as an economical means to screen or compare devices.

5.2 It is essential that the test device be operated in a steady-state condition during the evaluation period so that operational performance factors can be consistently monitored, evaluated and recorded.

5.3 Examination of qualitative performance factors can be obtained at any of the facilities described above and will entail assessment before, during and after quantitative testing.

## 6. Interferences

6.1 The reporting of results shall address the possibility of test facility effects. For example, wall effects may interfere hydrodynamically with the performance of a device.

6.2 Care should be taken so that any containment apparatus not designed specifically for the skimming device does not affect the distribution of test fluid to the device or its ability to recover the test slick. Similarly, skimmers should be tethered in a way that does not interfere with performance.

## 7. Test Facilities

7.1 Several types of test facilities can be used to carry out the performance evaluations outlined in this guide.

7.1.1 *Wave/Tow Tank*—A wave/tow tank has a movable bridge or other mechanism for towing the test device through water for the length of the facility. A wave generator may be installed on one end, or on the side of the facility, or both.

7.1.2 *Current Tank*—A current tank is a water-filled tank equipped with a pump or other propulsion system for moving the water through a test section where the test device is mounted. A wave generator may be installed on this type of test facility.

7.1.3 Other facilities, such as private ponds, tanks, or flumes may also be used, provided the test parameters can be suitably controlled.

7.2 Ancillary systems for facilities include, but are not limited to, a distribution system for accurately delivering test fluids to the water surface, skimming systems to assist in cleaning the facility between tests, and adequate tankage for storing the test fluids.

7.3 Additional capabilities at the test facility should also include: the space, materials and tools necessary to effect assembly, maintenance and minor repairs of test devices; the means to safely lift test devices for deployment and retrieval; and platforms and walkways to facilitate observation, sampling, and written, photographic and video recording.

7.4 These qualitative observations can be made during quantitative testing in accordance with Guide F631, or in the field during exercises and response operations provided that appropriate records are kept.

## 8. Test Fluids

8.1 Test fluids for use with this guide should be selected to fall within the parameters of those listed in Guide F631. These test fluids may be crude, refined, or simulated.

## 9. Safety Precautions

9.1 Test operations shall conform to established safety and regulatory requirements for test facility operations and test fluid handling. Particular caution must be exercised when handling flammable or toxic test fluids, refueling motors, and deploying and retrieving test devices from the test tank.

9.2 Test operations shall also employ the safety precautions recommended by the manufacturers of devices and equipment employed during testing.

## 10. Equipment Operation

10.1 The test device shall be deployed in accordance with facility operating characteristics.

10.2 The device must be operated in accordance with the manufacturer's specified operating instructions with respect to mechanical operations, safety, and established maintenance routines. A representative of the manufacturer should be invited to participate in the initial setup and training of testing personnel.

10.3 Modifications to the device prior to or during the course of testing should not be done except in consultation with the manufacturer.

10.4 Modifications to the device, in any form that differs from the supplied test device, shall be recorded with the test results.

## 11. Test Variables and Qualitative Performance Factors

11.1 The test evaluator shall review and indicate the performance factors and methods selected for evaluation.

11.2 Qualitative performance evaluation should be conducted coincident with quantitative testing. Quantitative test procedures should be followed as specified in 12.1 to 12.4 of Guide F631 for the operation of the test tank, distribution of test fluid, and collection of numerical data.

## 12. Pre-Deployment

12.1 Prior to testing:

12.1.1 Review the manufacturer's reference materials and all items received for testing.

12.1.2 Verify that supplied components, including fittings, hoses and materials, are in accordance with the manufacturer's