

Module and Pathway Test Report

Module: FBSDK Downloads, July 2011

Pathway(s): Calculate safety zone size (IFT-safety)

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General Testing Procedures

All modules implemented in IFTDSS undergo two types of testing:

- **Scientific testing** to ensure that the outputs produced by the module are consistent with a range of expected values generated by the native desktop software application and/or provided by the scientific model developer(s). These tests include comparisons for a range of predefined scenarios developed to exercise different parts of the module.
- **Software testing** to ensure that the module is functioning from a usability perspective, accepting inputs, and producing outputs without generating software error reports. These automatic tests also ensure that as updates are made to the models or modeling framework, each individual module produces correct data values.

This document describes Sonoma Technology, Inc.'s test cases.

Scientific Testing

Safety Zone Size Test Case

This test case compared the Safety Zone Size module in IFTDSS to the desktop version of BehavePlus 5.0.5 using three simulations to test for data ranges commonly observed by users and to allow the comparison of a variety of results. Three output parameters, safety zone separation distance, safety zone size, and safety zone radius, were compared.

Inputs and Results File Name

- Safety zone size test case results (included in the IFTDSS online help under **IFTDSS Compared with Other Systems > Module Test Cases**)
- [Safety zone size test case summary](#) (Appendix)

Passed/Fail: Passed

Issues: None identified

References

Documentation of BehavePlus operation and application:
<http://www.firemodels.org/index.php/national-systems/behaveplus>

Appendix: Scientific Test Case for the IFTDSS Calculate Safety Zone Size Model as Implemented in BehavePlus

Summary of Findings

The Safety Zone Size module as implemented in IFTDSS is a scientifically sound representation of the desktop version of BehavePlus 5.0.5. In this test case, the output values from IFTDSS and desktop BehavePlus matched with negligible rounding/truncating differences.

Methods

Safety Zone Size Test Case

This test case compared the Safety Zone Size module in IFTDSS to the desktop version of BehavePlus 5.0.5 using three simulations (Table 1) to test for data ranges commonly observed by users and allow the comparison of a variety of results.

Table 1. Input data used for the safety zone size test case.

Input Parameter	Unit	Simulation 1	Simulation 2	Simulation 3
Flame Length	ft	5	15	25
Number of Personnel		7	7	7
Area per Person	ft ²	40	40	40
Number of Heavy Equipment		2	2	2
Area per Heavy Equipment	ft ²	300	300	300

Results

Safety Zone Size Test Case

Results from the Safety Zone Size module implemented in IFTDSS and desktop BehavePlus for the three simulations tested matched with negligible rounding/truncating differences (Table 2).

Table 2. Results from the safety zone size module comparison.

Output Parameter	Unit	Simulation 1		Simulation 2		Simulation 3	
		IFTDSS	Behave Plus	IFTDSS	Behave Plus	IFTDSS	Behave Plus
Safety Zone Separation Distance	ft	20	20	60	60	100	100
Safety Zone Size	acre	0.0973	0.1	0.42	0.42	0.98	0.98
Safety Zone Radius	ft	36.74	37	76.74	77	116.74	117