May 15, 2018

Floyd Yager, Chair
Florida Commission on Hurricane Loss Projection Methodology
c/o Donna Sirmons
Florida State Board of Administration
1801 Hermitage Boulevard, Suite 100
Tallahassee, Florida 32308

Re: AIR Hurricane Model for the United States Version 16.1.0 as Implemented in Touchstone Version 5.1.6

Dear Mr. Yager,

AIR has recently released an updated software platform, Touchstone Version 5.1.6, that contains the AIR Hurricane Model for the United States (the U.S. Hurricane Model) Version 16.1.0. AIR would like to submit the AIR Hurricane Model for the United States Version 16.1.0 as Implemented in Touchstone Version 5.1.6 under Report of Activities, Section VI.G. as an interim software update.

Touchstone Version 5.1.6 contains updates that have no impact to the Florida hurricane modeled loss costs or PMLs from these updates. For your convenience, a list of the updates included in 5.1.6 is provided below.

- Update to exception handling if a user's environment experiences timeout during the analysis. Please see the Attachment, Summary of Environment Time-out Issue, for more information.
- Enhanced the pre-processing step of a loss analysis to improve run times. The pre-processing step performs validation checks on exposure against the analysis settings selected by users as well as prepping the engine cores for analysis.
- Update to the application of sublimits in Commercial policies covering multiple locations. An example of how sublimits would be leveraged in a Commercial policy is through a separate limit that would be used to cap the loss within a region (e.g. state) in additional to the overall policy limit. The update allows Touchstone to apply multiple sublimit sets within one policy accurately rather than only one set of sublimits.

In accordance with the 2015 Report of Activities, Section VI.G., we have prepared the following forms with results from the currently acceptable version, 4.1.0, and the updated version, 5.1.6, as well as a percentage change that demonstrates no change for the Commission's review:

- Form A-1 (Zero Deductible Personal Residential Loss Costs by ZIP Code)
- Form A-4 (Output Ranges)
- Form A-8 (Probable Maximum Loss for Florida)
- Form S-5 (Average Annual Zero Deductible Statewide Loss Costs – Historical versus Modeled)
- Form V-2 (Hurricane Mitigation Measures and Secondary Characteristics, Range of Changes in Damage)

AIR would like to request that the same consideration be given to Touchstone 5.1.6 as has been given to other past interim software releases. We ask that the Commission confirm that the AIR Hurricane Model for the United States v16.1.0 as implemented in Touchstone 5.1.6 is considered as equivalent to the AIR

Hurricane Model for the United States v16.0.0 as implemented in Touchstone 4.1.0 and accepted under the 2015 Standards.

Regards,

Brandie Andrews, CEEM
Vice President, Regulatory and Rating Agency Client Services

Attachment – Summary of Environment Time-out Issue

Background

Touchstone 5.0 introduced improvements to the speed and performance of several software functions. One change made, as described in the 5th bullet on page 2 of our 6/30/2017 letter to the Commission, was to move the assignment of a locations' physical properties from the import step to the analysis step. As a reminder, physical properties are based on a location's latitude and longitude, include things like the soil type and elevation of the risk, and inform the assessment of the hazard.

It has come to our attention that a rare computer environmental issue has on at least one occasion caused a client's Touchstone analysis to experience a time-out of unknown length during which Touchstone failed to retrieve the physical properties for some locations. After the connection was reestablished, the Touchstone analysis finished, but the locations that did not get physical properties assigned were dropped from the analysis.

Change to Touchstone in 5.1.6

The Touchstone 5.1.6 hotfix addresses this issue by causing an analysis to fail if an environmental time-out occurs and persists through three attempts to reestablish connection, and if physical properties is not assigned for any locations. Touchstone provides a message in the log that indicates the point in time at which the analysis failed, and that the failing error was that physical properties could not be computed/assigned.

Before the Touchstone 5.0 change to timing of physical properties assignment (formerly it was during import, currently it is during analysis), it was possible for the same dropped location behavior to occur if the environment experienced a time-out. In such cases, the user could investigate any dropped locations and re-import them. The change to Touchstone 5.1.6 analysis exception handling will again allow for the user to investigate any dropped locations or the computer environmental issues.

Environment Time-out Causes

The Touchstone platform utilizes several hardware and software components including database, GIS, application, analysis and client servers, as well as Microsoft's High Performance Computing (HPC) functionality and SQL Server. AIR publishes hardware and software recommendations and, where needed, works with clients during set-up of the Touchstone environment to achieve optimal deployment on-site.

It is possible for a client's environment to experience certain conditions that will cause a connection time out during an analysis. Theoretically a time-out can happen in several ways:

1. An instance of the SQL Server Database Engine is not running during an analysis
2. The SQL Server Browser service is not running
3. The Transmission Control Protocol/Internet Protocol (TCP/IP) is disabled at time or its taking time to respond
4. There are network problems
5. The TCP/IP port for the Database Engine instance is blocked by a firewall
6. The client and server are not configured to use the same network protocol

Log Message Indicating Time-out

The current analysis log indicates the occurrence of a time-out and dropped locations through the following notifications:

```
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HPC Host Log
2018-01-22 09:04:31,723 Started processing physical properties at 1/22/2018 9:04:31 AM
2018-01-22 09:06:51,785 Could not complete physical properties computation. Exception: Could not open the file
M21_Phy_01.bin
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  o Physical Properties Info
       Physical Properties computation completed at 01/22/2018 09:14:08
          Time taken for Physical Properties computation: 00:09:02
          Time taken for Post Processing of Physical Properties: 00:00:37
          Total time taken for Physical Properties processing: 00:09:40
      Physical properties couldn't be computed for 97348 location(s) with TRV
  of 44,041,031,301.
  - - - - - - - - - - - - -
```

The Touchstone 5.1.6 analysis log will include the above information, as well as indicate the point in time at which the analysis failed, and that the failing error was that physical properties could not be computed.